The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 135, NO. 13 — CHICAGO, ILLINOIS — NOVEMBER 29, 1947

COPYRIGHT, 1947, BY AMERICAN MEDICAL ASSOCIATION

THE PRESENT STATUS OF INDUSTRIAL MEDICINE

Chairman's Address

C. O. SAPPINGTON, M.D., Dr. P.H.
Chicago

In a brief consideration of the present status of industrial medicine it seems advisable to call attention to some of the factors which in the past have had an important bearing on this field of practice; and it also seems justifiable to make some remarks about the future of industrial medicine, particularly with reference to some of the improvements which can be made.

A number of experiences in the progress of industrial medicine will, therefore, be mentioned and commented on, and certain problems will be briefly discussed.

One of the great paradoxes in America, pointed out many years ago by an astute statistician, is the phenomenon of American industry continuing to make great progress and occupying the top position among the other nations in production and production methods, while industrial medicine as practiced in American industry has continued to struggle along with moderate recognition and no real place among other medical specialties. All the reasons for this phenomenon cannot be given here, but a few auxiliary points will be considered.

Industrial medicine has grown up in an environment of critical attitude by other specialists and by practitioners in general; in a great many instances, it has not been well understood. This critical attitude, however, has had a permanent effect on the growing child—a considerable number of physicians still think that industrial medicine is not respectable, and because of this reaction within the profession a considerable number of laymen, including industrialists, likewise think that the chief reason why physicians go into industrial practice is that they cannot make a living in private practice. A study of the present status of industrial medicine shows that this conception is founded more on hearsay than on fact, because there are as capable and well-informed men in the practice of industrial medicine today as are to be found in any other specialty.

One of the present problems, and it is indeed a pressing one, centers about the provisions for the remuneration of physicians in industry. In a great many instances, but with some exceptions of course, industry does not pay enough to attract new blood of good ability to its industrial medical departments; it has been estimated that the young physician of today, be he specialist or general practitioner, can make two to ten times as much in private practice as he can on a full time basis within an industrial establishment. The result has been, especially recently, that only a relatively small number of high class young men are really interested sufficiently to participate in the practice of industrial medicine on a full time basis.

One may well ask how industrial medicine managed to procure its medical leaders, not only in the earlier years when the vicissitudes of full time industrial practice were most evident, but also during the later years when there has been so much competition in other fields. It has been both because of the opportunity and because of idealism; money was not the first consideration of these men who were pioneers and also who in later years have been active in full time industrial practices; they wanted to do a good job, that being the main objective.

Meanwhile, there were no standards of specialism, even after industrial medicine had been officially declared a specialty, and moreover there were no means of certification. Any one who possessed an M.D. degree might and could practice industrial medicine regardless of whether he was interested in any other specialty (and many times he was and was so listed). It was not uncommon, for example, in the early 1920's and 1930's to find obstetricians and urologists as part-time medical directors in large industrial organizations. Similar conditions still exist to a certain extent.

In general, a mutually satisfactory arrangement between industrialists and physicians consisted in the latter's using industrial practice as a means of partial income while acquiring a greater volume of private practice and the former's obtaining the services of a physician at low price levels, because of relatively short tenure. This condition, as might be expected, did not assist in raising the standards of industrial practice, nor did it help the reputation of industrial medicine among industrialists. A vicious circle was thus created, and this vicious circle still exists to some extent throughout the country.

Among the factors which have delayed the maturity of industrial medicine as a specialty has been the emphasis on the pathologic basis of injuries and disease and a lack of full appreciation of the importance of the principles of prevention—this notwithstanding the fact that in most phases of medical practice what is known about prevention has been learned principally from a study of pathologic processes and curative measures, which method is inherently different from the approach to preventive measures through engineering, with which industry is well acquainted and vitally concerned.

Read before the Section on Preventive and Industrial Medicine and Public Health at the Ninety-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., June 11, 1947.

It is with respect to preventive principles that the legislators have been slow to provide laws for the protection of the health of the working population; coincident with this has been observed the slow recognition of the importance of providing undergraduate and postgraduate courses in industrial medicine in medical schools, which might well represent adequate academic background on which not only to build the basis for proper certification and specialization but also to afford the means by which industrial management might generally recognize the respectability and responsibility of industrial medical practice.

The group (sometimes called social) and economic phases of industrial medicine, with which might well be included the preventive phases, are such as to draw rather sharp lines of definition between this type of special practice and that of most of the clinical specialties. It is probable that physicians in general have not recognized the importance of these phases of industrial medicine but are coming more and more to do so. It is not mere idle speculation that because the practice of industrial medicine is characterized by these group, economic and preventive factors, such collective experiences may clearly point the way to remedies or changes which are today taking place within the field of the general practice of medicine—industrial medicine has long been concerned with the administration of health programs in groups. The employer-employee relationship has thus created many problems peculiar to industrial medicine, which are not ordinarily found elsewhere in the practice of medicine.

Another problem which has bothered those who are close to it and have been most concerned with it is the proper and adequate provision of clinical teaching material in the field of occupational diseases. It has been said by some who have considerable authority that there is not sufficient clinical material even in the larger centers to provide enough for teaching occupational diseases. Whether this shortage is only apparent or is real is a question. Here again one encounters an example of the group and economic factors in the practice of industrial medicine, in this respect—the true difficulty probably arises in getting a working agreement between employees with occupational diseases, who represent the clinical material to be used in teaching centers and who rightly expect and should have compensation for disability from occupational diseases, and the employers, who necessarily must agree to the payment of such compensation and to other arrangements which are important. The real difficulty, therefore, apparently is one of medicolegal implications, and thus the complexities of the problem are obvious.

Without enlarging on the many ramifications of the problems of industrial medicine, brief comment will be made concerning its needs at present. It seems to me that industrial medicine needs an industrial relations survey within its own ranks—good industrial relations, like charity, begin at home; also good industrial relations constitute a sound basis for good public relations. The practices within the field of industrial medicine should be critically examined; this refers not to technic but to professional relationships.

Also, industrial medicine needs a good public relations program continuously to inform industry what management needs and what it should have in the way of industrial health programs. Such information should be on a continuing basis, because in the words of a well-informed industrial executive, "We talk to a passing parade." Recent experiences in the study of health administrative practices in industrial groups of all sizes indicate that not only in the so-called small plants, which have received so much emphasis, but also in the medium sized and large plants a considerable number of industrialists do not realize the nature and extent of health services which should be provided.

Moreover, industrial medicine needs a psychosomatic diagnosis within its own domain and appropriate advice and treatment for its physical ills and mental aberrations.

To those who have been engaged in the practice of industrial medicine and have been observing its progress for a quarter of a century or more, it is most encouraging to see that recent official emphasis has been put on specific sectional activities, the planning of accredited courses in the medical schools and provisions for residencies in hospitals, which may ultimately pave the way for sound certification and specialization.

Industrial medicine, therefore, can look forward in the not too distant future, assisted by the help that organized medicine can give it, to occupying a place of respect, responsibility and possibly admiration among the rest of the recognized specialties.

330 South Wells Street.

EMERGENCIES OF INJURIES OF THE CHEST

BRIAN BLADES, M.D.
Washington, D. C.

Data concerning thoracic wounds during the last war are still incomplete, and final results cannot be assessed. Sufficient information is available, however, to indicate that the mortality from wounds of the chest has been the lowest ever recorded in the history of warfare. In 1944, Carter and DeBakey[1] reported the mortality rates in over 20,000 cases of war wounds of the chest in World War II. The total mortality was 8.1 per cent. A comparison of this figure with World War I, in which the death rate was 24.5 per cent, furnishes a dramatic demonstration of the great progress which has been made in the management of injuries of the chest.

It would be easy to attribute the lowest mortality for wounds of the chest which has ever been recorded in the history of warfare to new and novel surgical technics and to the development of modern thoracic operations. It is safe to state, however, that the more radical procedures such as lobectomy and pneumonectomy which became practicable between the two world wars had little to do with the lowered mortality of wounds of the chest.

Far more important than operative technics or the availability of antibiotics in the increased survival rate

From the Department of Surgery, George Washington University School of Medicine.

Read in a panel discussion on Emergency Surgery in the General Scientific Meetings at the Ninety-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., June 10, 1947.

1. Carter, B. N., and DeBakey, M. E.: Current Observations on War Wounds of the Chest, J. Thoracic Surg. **13**: 271, 1944.

for wounds of the chest has been proper preoperative management and particularly judicious timing and selection of surgical procedures. It is impossible to give proper credit to the many surgeons who have contributed to the subject during the past war, but it is evident that never before in the history of surgery have battle casualties received such prompt care by splendidly qualified surgeons. The lessons learned in caring for severely wounded soldiers have provided information which will be valuable when applied to the management of civilian accidents. Resuscitative measures which make possible the preservation of life will depend mainly on the timing of operative intervention and correctment of physiologic disturbances during the first few hours after injury.

INITIAL TREATMENT OF THORACIC WOUNDS

Shock.—Early in the war, Churchill [2] stated that "the management of shock is first directed toward maintaining life, but the real goal is to get the patient in condition for essential surgery."

Control of shock and stabilization of the patient's condition are necessary in wounds of the chest before one can determine whether surgical intervention is indicated. In this connection it is important to emphasize that a feature peculiar to thoracic wounds, namely, partial suffocation, may be the major factor in producing shock when the lungs are damaged. Accumulations of blood or mucus in the trachea or bronchi or pulmonary edema may result in a rapidly fatal outcome unless relieved. Bronchial secretions may be removed successfully by aspirations with the bronchoscope or by catheter suction. A lung drowned with edema fluid is a more serious problem, and oxygen therapy is probably the most satisfactory form of therapy.

Samson, Burford, Brewer and others [3] have described the entity of the traumatic wet lung. Whether this condition is caused by reflex bronchial spasm following trauma to the chest wall and lung or results from the inability of the patient to cough up bronchial secretions because of pain is of little practical importance. If the tenacious intrabronchial secretions are not removed by coughing or aspiration, suffocation may follow.

Two important points in the treatment of shock which have been recorded by surgeons charged with the responsibility of the resuscitative care of the severely wounded are the complete inadequacy of plasma as a substitute for whole blood in the treatment of shock [4] and the important fact emphasized by Beecher [5] and others that the resistance of a shocked patient to morphine is decreased and there is grave danger of delayed morphine poisoning if the drug is employed too liberally. This is particularly true of wounds of the chest.

Relief of Pain Originating in the Chest Wall.—Pain from the chest wall may cause splinting of the movements of the thoracic cage which will diminish respiratory excursions to a dangerous level. Minor rib fractures common in civil life are painful but often can be controlled by partial immobilization of the chest wall by properly placed adhesive strapping. Completely effectual immobilization of the thoracic cage by strapping, however, will cause a dangerous reduction in vital capacity, and in the severely injured strapping should be avoided.

Injection of procaine hydrochloride either in the site of rib fractures, or preferably by paravertebral blocks, has been highly successful in controlling thoracic pain. Samson and Burford [3a] have emphasized the importance of controlling pain in the thoracic wall before an intelligent evaluation of shock can be made in patients with thoracic wounds, and have also stressed the value of paravertebral procaine hydrochloride block in the treatment of the "traumatic wet lung."

Paravertebral block is a simple procedure which can be accomplished with a minimum amount of equipment.

Technic of Paravertebral Block.—The procedure may be accomplished with the patient lying in the prone position or on his side with the thighs flexed on the abdomen. After the skin is prepared an intradermal wheal of procaine hydrochloride is placed approximately 3 cm. lateral to the posterior spine of the vertebra in the interspace at the desired level of injection. After the intradermal wheal has been raised the needle is passed through the skin and is advanced upward and medially until the transverse process of the vertebra has been located. A 3 inch (7.6 cm.) 20 gage needle is desirable for this purpose. When the transverse process is located the tip of the needle is withdrawn and directed slightly below the transverse process. The needle is then advanced approximately 0.5 cm., and 5 to 10 cc. of 1 per cent solution of procaine hydrochloride is injected. It is important to remember that when paravertebral block is employed at least two intercostal nerves below and above the point of maximum pain should be injected.

Sucking Wounds.—The necessity for prompt closure of sucking wounds was understood during the last war and has been repeatedly emphasized in the discussion of thoracic injuries for many years. The consequences of an open thoracic wound will depend on the vital capacity of the injured man. The principle of immediate closure of sucking wounds of the chest has been thoroughly substantiated. Under adverse circumstances which preclude proper cleansing of the wounds, the methods of closure should be altered, however, depending on the type of severity of the defect. In emergency conditions occlusive dressings may be utilized as a temporary measure, and if primary suture is unwise because of the condition of the wound, occlusive dressings may be preferable to primary or secondary suture, depending on available surgical facilities.

Tension Pneumothorax.—The dangers of tension pneumothorax in both penetrating and nonpenetrating injuries of the chest have been appreciated for years. The treatment is simple and the recognition of the condition easy if the possibility of leakage of air into the pleura is considered. Decompression by catheter drainage with a water seal or flutter valve attachment will usually relieve the tension promptly.

Traumatic Hemothorax.—Hemothorax of demonstrable proportions will be found in practically all serious thoracic wounds. One of the most valuable

2. Churchill, E. D.: Trends and Practices in Thoracic Surgery in the Mediterranean Theater, J. Thoracic Surg. **13**: 307, 1944.

3. (*a*) Samson, P. C.; Burford, T. H.; Brewer, L. A., and Burbank, B.: The Management of War Wounds of the Chest in a Base Center, J. Thoracic Surg. **15**: 1, 1946. (*b*) Burford, T. H., and Burbank, B.: Traumatic Wet Lung, ibid. **14**: 415, 1945.

4. Churchill, E. D.: The American Surgeon, A. U. S., Surg., Gynec. & Obst. **84**: 529, 1947.

5. Beecher, H. K.: Preparation of Battle Casualties for Surgery, Ann. Surg. **121**: 769, 1945.

lessons learned from military experience has been that the conservatism common in civilian practice before the war in the management of hemothorax should be abandoned in all cases in which a significant accumulation of blood is found in the pleura.

Early expansion of the lung should be accomplished by aspiration of the fluid from the pleura without regard for the existence of pressure symptoms. In the past it was felt that early evacuation of blood from the pleura might result in secondary hemorrhage. Some surgeons advocated either delayed aspiration or employment of air replacement when the blood is removed to prevent rapid reexpansion of the damaged lung. It has been established, however, that the theoretic advantages of aspiration with air replacement—namely, prevention of secondary hemorrhage—are questionable. The primary objection to air replacement is that the lung will remain collapsed, which not only reduces pulmonary function but leaves the entire pleural space vulnerable to infection. If, however, the hemothorax is evacuated early without replacement of air, the pleural space will be occupied by the reexpanded lung, and if empyema does occur it will be one of small volume. Failure to remove blood from the pleura will, in severe wounds, often be followed by the development of a chronic hemothorax or fibrothorax.

Chronic Hemothorax.—It appears that in civilian life chronic hemothorax resulting from clotting of the blood with formation of a putty-like mass bathed in blood-stained fluid is relatively rare. In severe war wounds, however, clotted hemothorax was common, and there is no reason to believe that this complication would not be common in any severe thoracic injury. Not only is the lung crippled by partial collapse when this condition appears, but there is convincing evidence that there is an inflammatory response of the pleura and the lung itself to retained blood. It is obvious that the ultimate goal in treatment of hemothorax is complete reexpansion of the lung and conservation of as much cardiopulmonary function as possible. One of the outstanding contributions of this war was the revival of decortication of the lung by Burford and others for the treatment of clotted hemothorax.

This operation involves an open thoracotomy for the removal of the fluid and clot from the pleura and excision of the fibrous corset of tissue which holds the lung in a collapsed position. Burford, Samson, Brewer [3a] and others have recorded their technics and splendid results.

SUMMARY

The advances made in the management of wounds of the chest during the past war have not been the result of technical improvements but have resulted from judicious timing and selection of surgical procedures.

The absolute necessity for whole blood in the treatment of shock and the danger of excessive use of morphine in shocked patients can be applied directly to injuries in civilian life.

Control of thoracic pain by paravertebral injection of procaine hydrochloride should largely replace strapping the chest in cases with fractured ribs.

The treatment of the "traumatic wet lung" by paravertebral block and other therapeutic measures will be of importance in civilian life.

Early aspiration in cases of hemothorax to effect complete reexpansion of the lung and conservation of cardiopulmonary function is applicable to civilian practice. In instances of clotted hemothorax the principle of the decortication operation which gave brilliant results in war wounds should be applied to all cases of clotted or fibrothorax.

ABDOMINAL INJURIES

PAT R. IMES, M.D.
Louisville, Ky.

Injuries of the abdomen have always been associated with a relatively high mortality rate whether incurred in military or civilian experience. The management of such injuries in World War II effected a remarkable improvement in the results, when compared with those recorded in previous wars and with most reported comparable civilian series. In a review of the management, the difficulty in evaluation of the factors responsible for such improvement will become apparent. There seems little question, however, that resuscitation was the most important factor and that the technical procedure employed was perhaps the least. Certain peculiarities of war wounds of the abdomen, as type and character of wounding agent, prolonged preoperative time lag and battlefield contamination, do not invalidate the application of the responsible factors for the improvement to civilian injuries.

Primary care of the injured abdomen in warfare is essentially definitive in character—completed in a single phase—although the procedure may be staged as in civilian practice.

RESUSCITATION

Shock is commonly associated with abdominal injuries and is the most lethal factor in its effect. Towery,[1] in a review of 957 cases with gastrointestinal perforation, found the systolic blood pressure at the time of admission below 100 mm. of mercury in 53 per cent with a mortality rate of 48 per cent, whereas in 47 per cent with the blood pressure above 100 the mortality rate was 18 per cent. From a review [2] of the experience in the Mediterranean theater, 60 per cent of the deaths following abdominal injuries were directly attributed to shock.

Recognition of the importance of shock and the institution of effective measures for preventing or combating it early in the war were believed largely responsible for the improved results obtained. Those measures were properly directed at the diminished volume of circulating blood. Replacement of blood volume to be effective in combating shock must be instituted early and persisted in vigorously. The time lag between the onset of shock and the initiation of replacement therapy was of much greater significance than the preoperative interval, which heretofore was believed the most important factor in the mortality. The severely wounded in World War II received replacement therapy in the form of plasma infusions in aid stations within an aver-

Read in a panel discussion on Emergency Surgery in the General Scientific Meetings at the Ninety-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., June 10, 1947.

1. Towery, B. T.: Data Submitted to Consulting Surgeon, Mediterranean Theater of Operations, United States Army.

2. Imes, P. R.: Abdominal Trauma, Am. J. Surg. **73**: 199-209, 1947.

V 13
1947

age period of two hours following injury. The man with abdominal injury, having received some antishock therapy, was then transferred to a hospital, where he arrived within an average of eight to ten hours following injury and where further replacement therapy, preferably by infusion of whole blood, was maintained until the patient was ready for surgical treatment. Further replacement was given during the operation and postoperatively as indicated. Often two or three liters of whole blood was given over a period of three or four hours preoperatively, the amount given depending largely on the patient's response. A stabilized systolic blood pressure of 100 mm. of mercury was desirable before undertaking the operation. Occasionally no such favorable response was obtained, particularly in instances of persistent intra-abdominal hemorrhage or extensive fecal peritoneal contamination. In such instances the operative procedure was considered an additional essential resuscitative measure and was carried out without further delay.

Rarely is the abdominal catastrophe such that a careful consideration of the patient, including indicated laboratory procedures, cannot be made. Roentgenographic examination with plain films is most worth while in patients with retained foreign bodies and suspected gastrointestinal perforations. Only by thorough examination will the pitfalls of incorrect or incomplete diagnosis be averted and can the subsequent operative procedure be planned to the best advantage.

Emptying the often distended stomach by inserting a nasogastric tube facilitates resuscitation, averts the hazards of aspiration of gastric contents during anesthesia and facilitates an operative procedure for the upper part of the abdomen.

135
47

ANESTHESIA

Good muscular relaxation is essential for thorough examination of the injured abdominal viscera. The anesthesia may be necessarily prolonged and must not have a too deleterious influence on shock. Ether administered through an endotracheal tube seemed to possess those qualifications with less disadvantage than other agents or methods used during the war.

OPERATIVE APPROACH

A vertical abdominal incision, midline or paramedian, has its advantages particularly if the extent of the intra-abdominal injury is unknown or should it be desirable to exteriorize a colonic segment. Such exteriorization is best made through a separate, laterally placed incision. The primary incision should not be made by extension of a penetrating wound of the abdominal wall. A coexisting thoracic or diaphragmatic injury often makes desirable a transthoracic approach, which not only permits thorough care of the associated chest injury but facilitates the care of injuries in the upper part of the abdomen and the diaphragm.

OPERATIVE MANAGEMENT OF SPECIFIC VISCERAL INJURIES

The fundamentals essential in the operative management of abdominal trauma are: (1) control of hemorrhage, (2) a thorough orderly examination of all possible viscera involved, (3) accurate care of all hollow visceral wounds, (4) excision of nonviable tissue and removal of foreign material and (5) drainage of the contaminated retroperitoneal space.

It is well recognized that considerable latitude may be exercised in regard to technical procedures employed on the abdominal viscera so long as those fundamentals are closely observed. That is particularly true in civilian practice but perhaps less so in military experience. In the latter a certain degree of standardization seemed desirable to assure maximal adherence to the fundamental principles and because of the necessity for evacuation of the patients to another echelon for their further surgical care, often without detailed or adequate description of the operative procedure. Consequently, certain technical procedures were emphasized and advocated during the war which may seem unwarranted in civilian practice.

A brief commentary on the operative procedures advocated and generally practiced during World War II follows:

Stomach.—Most wounds of the stomach were amenable to simple closure; rarely were they so extensive as to warrant resection.

Duodenum.—Extensive mobilization of the duodenum was necessary for the finding and accurate closure of wounds without undue tension resulting. Failure to observe that principle resulted in some overlooked perforations and breakdown of improperly closed ones, either instance leading to a fistula with its disastrous consequences.

Small Intestine.—The wounds were usually multiple, but their size and distribution were such that simple closure could be effected in the majority. In others, however, the wounds necessitated resection and anastomosis, which procedure had little or no relation to the increased mortality from the more extensive injuries indicating the resection. Thus, the increased mortality in instances requiring resection does not support the contention that simple suture per se is attended by much less risk. The injured small bowel was rarely exteriorized.

Colon.—In the majority of instances injured segments which could be mobilized, including all the colon down to the rectosigmoid, were exteriorized. Injuries of the distal sigmoid and intraperitoneal rectum were sutured, and a proximal colostomy was made. Exteriorization is undoubtedly warranted for extensive injuries of the bowel or its mesentery, but that it should be applied to less extensive injuries may be questioned. Primary suture, with or without a proximal vent, for the less extensive injuries proved equally safe in a relatively small number for which it was used and usually avoided the morbidity as well as the prolonged hospitalization attending exteriorization. Resection of a colonic segment followed by primary anastomosis is a too formidable procedure for a patient whose injury might appear to indicate it.

Rectum.—Wounds of the extraperitoneal rectum were managed by a proximal feces-diverting sigmoidostomy and drainage of the pararectal space through a postanal incision.

Bladder.—Suture of the injury, a high suprapubic cystostomy and drainage of the space of Retzius were routinely employed.

Kidney.—The extensively damaged kidney and injuries involving its pedicle, comprising approximately 25 per cent of those observed, were considered indications for

nephrectomy. In less extensive injuries, however, the kidney was often sutured, packed or merely drained.

Liver.—Active hemorrhage from injuries to the liver was rare by the time that the patient came to operation. Light gauze packing usually sufficed to control any persistent bleeding. Although not available for general use during the war, the absorbable hemostatic preparations would seem preferable for this purpose. Loose fragments of liver and easily accessible foreign bodies were removed. Liver suture was futile and rarely attempted. Adequate drainage through a separate subcostal incision was considered an essential measure.

Spleen.—Significant injury to the spleen usually resulted in massive hemorrhage, and urgent splenectomy was the procedure employed. Injuries of a lesser degree received no treatment or an occasional gauze pack.

Pancreas.—Injuries to this viscus were subjected to drainage only.

POSTOPERATIVE CARE

All advantages gained by good preoperative and operative management may be lost without careful attention to the details in the postoperative period. Replenishment of the diminished blood volume, begun as soon as possible after injury and continued through the preoperative and operative periods, is maintained postoperatively until a satisfactory level is obtained as determined clinically as well as by means of laboratory determinations. The parenteral administration of water, electrolytes, nutritional elements and vitamins is started and maintained as indicated until they may be taken by mouth. The nasogastric tube inserted preoperatively is attached to a suction apparatus postoperatively and left in place until effective peristalsis is established.

Chemotherapy, although occasionally instituted preoperatively and often used topically at operation, was given systemically in a routine manner postoperatively. Thus practically every man with abdominal injuries during the war received the sulfonamide drugs or penicillin or their combination. Although the exact efficacy of the chemotherapeutic agents is difficult to assess, a definite impression was gained that they were of much benefit. Rarely did death result from invasive infection following their adequate administration. Infected operative wounds and intra-abdominal abscesses, however, appeared to occur with undiminished frequency regardless of chemotherapy. In abdominal surgery, as has been emphasized often for wounds of the extremities, chemotherapy does not permit compromising the sound surgical principles so essential for the patient's recovery. Its use as an adjunct to good surgery, however, is believed to have favorably influenced the factor of infection in the mortality.

Measures for the prevention of pulmonary complications, as encouraging coughing, tracheal aspiration when indicated, turning of the patient and chemotherapy, were employed routinely. Those complications, however, accounted for 13.6 per cent of the fatalities in spite of the prophylactic measures.

Particular alertness is required for the detection of an intra-abdominal abscess or an inadequately draining infected wound; prompt institution of drainage of those infections is important.

SUMMARY

The results from management of abdominal injuries in World War II show much improvement. The factors in the management of such injuries responsible for the improvement are discussed. They are believed to have equal application in civilian practice.

ADVANCES IN HEAD INJURIES

BARNES WOODHALL, M.D.
Durham, N. C.

No revolutionary advances were made during the recent war years in the diagnosis and treatment of acute head injuries. It is equally true, however, that neurosurgeons were alert to apply several striking discoveries in the broad field of science to the age-old problems of head injury. A more mature understanding of the pathology of head injury, refinements in operative technic and the addition of antibiotics have combined to make the clinical progress of an acute head injury a reasonably predictable matter. Since neurosurgical experience during the war years has been largely confined to open or compound head injuries, this review will be restricted to that particular phase of traumatic neurosurgery.

Granted that the brain injury is not an irreversible one, the successful treatment of an open head injury is largely dependent on the application of two surgical tasks: (1) the technical reduction of an open or compound injury to a closed or simple injury and (2) the prevention of infection. These surgical concepts apply to any traumatic injury but in the brain are influenced by the special structure of the head and its contents. Under the impetus of wartime research programs conducted within and without the military structure, considerable knowledge has accrued concerning the mechanism of open head injury.

MECHANISM OF OPEN HEAD INJURY

By means of high speed cinematography, microsecond roentgenographic technics and studies of tissue, several groups of observers have recorded the effects of experimental gunshot wounds of the brain and of other tissues.[1] All agreed that the passage of a high velocity missile through tissue, including the brain, produces a large, rapidly expanding, pulsating cavity. The pressure within this cavity produces a high radial velocity to surrounding tissues, increases with the mass and velocity of the missile and, in the case of the brain, may be great enough to cause extensive comminution of the bones of the skull. The marked expansion of the brain has been beautifully demonstrated by high speed cine-

From the Neurosurgical Division, The Duke Hospital and Medical School.

Read in a panel discussion on Emergency Surgery in the General Scientific Meetings at the Ninety-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., June 10, 1947.

1. Black, A. N.; Burns, B. D., and Zuckerman, S.: An Experimental Study of the Wounding Mechanism of High Velocity Missiles, Brit. M. J. **2**: 872, 1941. Callender, G. R.: Wound Ballistics: Mechanism of Production of Wounds by Small Arms, Bullets and Shell Fragments, War Med. **3**: 337 (April) 1943. Webster, J. E., and Gurdjian, E. S.: Acute Physiological Effects of Gunshot and Other Penetrating Wounds of the Brain, J. Neurophysiol. **6**: 255, 1943. Butler, E. G.; Puckett, W. O.; Harvey, E. N., and McMillen, J. H.: Experiments on Head Wounding by High Velocity Missiles, J. Neurosurg. **2**: 358, 1945. Pudenz, R. H., and Shelden, C. H.: The Lucite Calvarium—Method for Direct Observation of the Brain: II. Cranial Trauma and Brain Movement, ibid. **3**: 487, 1946.

matography of the living brain visualized through a "lucite" (methyl methacrylate) calvarium. The wound of exit, involved in the expanding pressure cone, is always larger than the wound of entry. If the brain is removed prior to wounding, the damage to the skull is relatively minor. In the intact head, the increased pressure is dispersed throughout the closed system of the brain and is manifested by a fatal or a reversible response of medullary centers. Many missile injuries of the brain are not accompanied by this phenomenon, which may be termed compression concussion, and consciousness may not be altered. In the usual civilian type of open head injury, common to mechanized armies, the local penetrating wound of the scalp, skull or brain may be accompanied by loss of consciousness attributed to abrupt acceleration or deceleration of the head, the so-called acceleration concussion. The physiologic responses of the brain to these two types of concussion, as well as to the shearing movements of the brain, have been studied intensively during recent years [2] and now allow the neurosurgeon a rational understanding of traumatic pathology of the brain.

RESUSCITATION

Front line neurosurgeons have demonstrated that an open head injury should not be considered an emergency in most instances but that treatment should be initiated in a specific fashion and completed only with a dispatch commensurate with the condition of the individual patient. Under the title "resuscitation" or "period of stabilization" are grouped a number of measures to be conducted as a preliminary to induction of anesthesia and wound débridement. It was noted that missile injuries of the brain, even with scant loss of blood, might cause profound shock and that stabilization of vital signs could be established by the use of large quantities of whole blood. The treatment of shock was given preference over all other therapy except that of clearing the respiratory tract by aspiration and maintaining a clear airway. Unless there were signs of rapid deterioration, this period of stabilization might be prolonged, although scant benefit was noted if the period of time passed that of twelve hours. Patients with active bleeding uncontrolled by pressure dressings or forceps applied to scalp arteries, with massive cerebral hematomas, with transventricular wounds and with a decreasing state of consciousness and an increase in neurologic signs were considered candidates for immediate operative intervention. Undue manipulation of the patient for the purposes of neurologic and roentgenographic studies was deferred until stabilization of vital signs was completed. Roentgen studies of the skull, in multiple projections and preferably stereoscopic, were, however, an essential part of the preparation for wound débridement. Chemotherapy, to be discussed in detail later, was commenced as soon as the patient reached surgical supervision.

2. Denny-Brown, D., and Russell, W. R.: Experimental Cerebral Concussion, Brain **64**: 93, 1941. Holburn, A. H. S.: Mechanics of Head Injuries, Lancet **2**: 438, 1943. Gurdjian, E. S., and Lissner, H. R.: Mechanism of Head Injury as Studied by the Cathode Ray Oscilloscope. J. Neurosurg. **1**: 393, 1944. Walker, A. E.; Kollros, J. J., and Case, T. J.: The Physiological Basis of Concussion, J. Neurosurg. **1**: 103, 1944. Denny-Brown, D.: Cerebral Concussion, Physiol. Rev. **25**: 296, 1945. Groat, R. A.; Windle, W. F., and Magnoun, H. W.: Functional and Structural Changes in the Monkey's Brain During and After Concussion, J. Neurosurg. **2**: 26, 1945. Gurdjian, E. S., and Lissner, H. R.: Deformation of the Skull in Head Injury Studied by the Stiencoat Technique: Quantitative Determination, Surg., Gynec. & Obst. **83**: 219, 1946.

ANESTHESIA

The majority of open head wounds due to missiles were operated on with local anesthesia alone or with a combination of local anesthesia and intravenous administration of "pentothal sodium," the first method being used in cooperative patients and the combination being available for restless and combative persons. The location of the head wound and the presence of complicating wounds of the chest, abdomen and extremities also played a role in the selection of anesthesia. In craniofacial wounds, where a clean airway was particularly important, intratracheal administration of ether was the method of choice. Chest and abdominal wounds received precedence over head wounds for immediate attention. The head wound might be debrided at the period of the primary procedure with the patient under the same anesthesia or deferred until the patient's condition improved and then be performed with the patient under local anesthesia. With wounds of the extremities, the head wound might be handled with the patient under local anesthesia and the wound of the extremity treated subsequently with the patient under "pentothal sodium" anesthesia.

Preoperative sedation was selected with care for those patients undergoing operation under local anesthesia. The most satisfactory preparation was found to be a combination of 1½ to 3 grains (0.1 to 0.2 Gm.) of pentobarbital sodium by mouth or 6 to 9 grains (0.4 to 0.54 Gm.) of "amytal sodium" N. N. R. (sodium isoamylethyl barbiturate) subcutaneously given one hour before operation, together with ⅙ to ¼ grain (10 to 15 mg.) of morphine sulfate given intravenously at the time that the head was being prepared for the actual operative procedure. Atropine sulfate, $\frac{1}{150}$ to $\frac{1}{100}$ grain (0.4 to 0.6 mg.) given subcutaneously, was used routinely prior to "pentothal sodium" anesthesia.

It is apparent that the use of "pentothal sodium" and the insistence on an open airway represent forward steps in the neurosurgery of open head wounds. The trained professional anesthetist, familiar with bronchoscopy, became a fundamental part of the traumatic neurosurgical team.

WOUND DÉBRIDEMENT

The basic concept of débridement of a cerebral wound formulated by Cushing in World War I was unchanged except in detail. Every scalp wound, no matter how trivial, was considered a possible brain wound or a potential source of infection.[3] Tripod, Isle of Man and craniotomy incisions were largely abandoned and superseded by an approach to the brain wound through the original scalp laceration, which itself might be extended to promote more adequate visualization. Wound débridement encompassed all devitalized tissues and foreign material that might, if left in place, act as a pabulum for subsequent wound infection. Each layer of the scalp was examined separately, and as narrow a margin as feasible of the edge of the scalp laceration was excised. By contrast, underlying devitalized temporal or occipital musculature was resected widely. The method of block resection of comminuted bone, popular in World War I, was replaced by a more direct approach to the bone wound. Resection

3. McKissock, W., and Brownscombe, B.: Apparently Trivial Head Injuries, Lancet **1**: 593, 1941.

was started at one edge of the defect in a loosely comminuted fracture over normal dura and carried around the defect. In wedged fractures, or those for instance over a dural sinus, the resection was commenced at a trephine opening made adjacent to the fracture. Care was taken to preserve pericranium when this structure was not grossly contaminated.

Débridement of the dura was kept at a minimum. Optimum preservation of this structure for closure was considered of importance. The brain wound was debrided by a combination of gentle irrigation and suction used simultaneously. Mechanical cleaning of the wound by irrigation was achieved, and no local antiseptic solutions were used. Fragments of bone and foreign bodies were removed with forceps under direct vision. Fragments of bone in particular were sought for with great care after identification of the tract of the missile and after study of the number and disposition of the fragments in the preoperative roentgenogram. Metallic foreign bodies were removed only if their removal did not invoke destruction of normal brain tissue. In civilian type injuries involving extensive comminution of bone, as well as in missile injuries, there was a tendency to remove all comminuted fragments, even if they did not appear contaminated. This was based primarily on the fear of infection but was influenced as well by the knowledge that simple methods of cranioplasty had been developed.[4] A number of primary cranioplasties with tantalum were carried out in uncomplicated skull wounds, but the rate of infection appeared unduly high.

HEMOSTASIS

From the technical point of view, a significant advance was found in the perfection of a new method of hemostasis, the use of absorbable carriers of thrombin. Fibrin foam,[5] gelatin sponge[6] and oxidized cellulose[7] were introduced during the war years but were little used in front line hospitals. They were tested intensively in base installations. Neurosurgery has few opportunities for pressure packing, and it is probable that the incompressible, styptic bulk of oxidized cellulose will find its primary use in closed wound packing in parts of the body other than the brain. The fluffy, spongelike forms of fibrin and gelatin, on the other hand, soaked in either human or bovine thrombin, are ideal for the control of hemorrhage from contused brain surfaces or from lacerated brain sinuses. They can by no means replace older and tested methods of hemostasis but they represent a decided addition to the neurosurgical aramentarium.

GUN SHOT WOUNDS OF THE BRAIN

Distinct advances were made toward a better understanding of the gross pathology of missile wounds of the brain, and this was particularly evident in the handling of certain specific hematomas associated with such wounds.[8] These were recognized in at least four definite locations along the wound tract. Often what appeared to be huge cerebral herniations proved to be large, superficially placed hematomas which had formed beneath the primary dressing. Of greater importance were the sizable hematomas that formed along the wound tract, usually at the deepest point of penetration. They might occur with the smallest of missiles, and their removal was attended with prompt relief of intracranial pressure and neurologic defect. In penetrating wounds in which the missile had reached but not penetrated the opposite skull wall, a third distinct variety of hematoma formation was found. When such hemorrhage and destruction of brain tissue occurred at a distance from the wound of entry, drainage was not possible along the missile tract and a massive hematoma might form. Relief of intracranial pressure was obtained by drainage and débridement through a separate trephine opening placed over the foreign body as localized in the preoperative roentgenogram. Transventricular wounds were often associated with a massive intraventricular clot, and the mortality of this lesion was high. The finding of hematomas of appreciable size at the wound of exit in a large percentage of through and through wounds of the brain led to the suggestion that the wound of exit should be explored first. Attention to the wound of exit often resulted in sufficient improvement in the patient's general condition to permit primary repair of both entry and exit wounds in an otherwise precarious situation.

THE CLOSURE OF OPEN HEAD WOUNDS

By the end of the war, military neurosurgeons were agreed that tight dural closure and scalp closure without tension were primary requisites for normal healing of cranial wounds. The dura is the most effective barrier to the ingress of infection from the outside and acts as an equally efficient protection against cerebral herniation and escape of subarachnoid fluid. Whenever possible, the dural edges were brought together tightly with interrupted silk sutures. When a defect remained that could not be closed in this manner, a graft was indicated. In general, adjacent pericranium in the form of a free graft was the most satisfactory material, and it might be used occasionally as a pedicled graft.[9] Other sources of free graft were the fasciae of the temporal or occipital muscles or fascia lata from the lateral aspect of the thigh. Fascia lata was used particularly in the large dural defects on the under surface of the frontal lobe where the brain wound communicated with the structures of the face.

Scalp wounds were closed without tension by means of two satisfactory procedures. A curved incision was made in one direction from the long axis of the scalp wound and a similar incision made in the opposite direction from the other end. Scalp mobilization was carried out in the areolar layer between the galea and pericranium, and in the case of most scalp defects, suture with minimal tension was secured. In larger defects, sliding or rotation flaps were used with the donor site closed either by extensive scalp mobilization

4. Woodhall, B., and Spurling, R. G.: Tantalum Cranioplasty for War Wounds of the Skull, Ann. Surg. **121**: 649, 1945.

5. Ingraham, F. D., and Bailey, O. T.: The Use of Products Prepared from Human Fibrinogen and Human Thrombin in Neurosurgery: Fibrin Foams as Hemostatic Agents; Fibrin Films in Repair of Dural Defects and in Prevention of Meningocerebral Adhesions, J. Neurosurg. **1**: 23, 1944.

6. Light, R. U., and Prentice, H. R.: Surgical Investigation of a New Absorbable Sponge Derived from Gelatin for Use in Hemostasis, J. Neurosurg. **2**: 435, 1945.

7. Frantz, V. K.; Clarke, H. T., and Lattes, R.: Hemostasis with Absorbable Gauze (Oxidized Cellulose). Ann. Surg. **120**: 181, 1944.

8. Matson, D. D., and Wolkin, J.: Hematomas Associated with Penetrating Wounds of the Brain, J. Neurosurg. **3**: 35, 1946. Martin, J., and Campbell, E. H., Jr.: Early Complications Following Penetrating Wounds of the Skull, ibid. **3**: 58, 1946. Haynes, W. G.: Transventricular Wounds of the Brain, ibid. **2**: 463, 1945.

9. Ecker, A. D.: Tight Dural Closure with Pedicled Graft in Wounds of the Brain, J. Neurosurg. **2**: 384, 1945.

or by primary grafting. Relaxing incisions were rarely recommended. A wide choice of plastic procedures for the relief of suture line tension have been reported.[10]

THE CONTROL OF INFECTION

The experience of military neurosurgeons provides a dramatic illustration of the tremendous value of the sulfonamide drugs, and in particular penicillin, in the control of brain infection and its treatment when it presents itself as a complication of open head injury. Although the total infection rate from the European Theater of Operations has been reported as 37.7 per cent,[11] of which 16 per cent were superficial infections, yet the total mortality from infection in the period immediately after definitive treatment attained the amazingly low level of 4.4 per cent. By comparison, the "Medical History of World War I" states that septic complications were present in 73 per cent of all patients with head wounds dying after treatment.[12] In one of Dr. Cushing's reports from that war, in 43 of 71 fatal cases of head injury the patients died from infection.[13]

Chemotherapy was initiated in all head wounds as soon as the patients came under surgical care, and was usually well under way before operative treatment was instituted. Prophylactic chemotherapy consisted in general of administration of 6 to 8 Gm. of sulfadiazine each day in four hour, divided doses by mouth and aqueous solution of penicillin intramuscularly, 30,000 units every three hours. The blood level of sulfadiazine was maintained, either by the oral or intravenous routes, at 8 to 15 mg. per hundred cubic centimeters, and a fluid level of 3,000 cc. a day was advocated when this high blood level was established. Although there is no statistical evidence available, experience in prophylactic chemotherapy both overseas and in base hospitals suggests that penicillin alone was adequate for that purpose, given as the aqueous solution or given once a day in 300,000 unit dosages combined with beeswax and peanut oil. Various forms of prophylactic local chemotherapy were used at the end of wound débridement. In the later days of the war, the conclusion was reached that the local application of the sulfonamide drugs and of penicillin did no good and might be harmful, assuming that systemic chemotherapy and wound débridement were adequate. Ventricular contamination was considered an exception to this conclusion, and in these cases 10,000 units of penicillin was placed within the wound.

THE TREATMENT OF WOUND INFECTION

Wound infections occurred in most instances when (1) wound débridement was incomplete, (2) missiles had passed through the air-containing sinuses and (3) scalp closure had been done under tension. In rare instances, wound infection occurred simply because of massive initial contamination. Since these patients were under the influence of prophylactic chemotherapy, the usual signs of infection were frequently absent.[14] The appearance of headache and head pain, in the course of an apparently normal convalescence, was the most constant sign of developing infection, followed later by evidence of increased intracranial pressure, progress in the neurologic defect and meningismus. Secondary or redébridement of infected wounds was repeatedly demonstrated to be the procedure of choice in these cases of secondary purulent cerebritis.[15] Intrathecal administration of penicillin in daily dosages of at least 10,000 units was used during the postoperative period in these cases with a full appreciation of the potential danger of overdosages.[16] The same policy of redébridement was followed in cases of true abscess formation and in instances of cerebral fungus formation. When meningitis occurred as a result of cerebrospinal fistula, closure of the dural defect remained an integral part of treatment.

Although dosages and specific modes of application of penicillin were not crystallized by the war experience, its value, with or without the sulfonamide drugs, was undisputably demonstrated for the control and treatment of infection caused by the common pyogenic bacteria. Meningitis caused by the coliform group carried a high mortality, and its rational treatment remains a problem. Some success was recorded in such cases with the sulfonamide compounds combined with urea. No experience with streptomycin in head wounds has been reported. All observers have emphasized that penicillin is not a substitute for surgical treatment. Secondary débridement of infected wounds must be done, the rent in the dura responsible for cerebrospinal fistulas must be closed and brain abscesses must be drained or removed totally. With penicillin, these procedures attained a plane of safety never before achieved in neurosurgery.

SUMMARY

An open head injury inflicted by a military missile differs from the common open wounds of civilian life only in the type of general response of the brain to that specific force and in minor pathologic detail. It is not difficult therefore to transpose the findings of military neurosurgeons to the essentially similar problems encountered in civilian traumatic neurosurgery. The lessons appear to be unequivocal ones. Definitive operation must be withheld until the patient's general condition is stabilized. A clear airway is an essential feature of the choice of any type of anesthetic. The selection of the proper anesthetic for the individual patient has been broadened by the introduction of "pentothal sodium." Wound débridement must be complete, and a poorly conceived or incomplete débridement is an invitation to disaster. Tight closure of the dura and closure of the scalp without tension are prominent features of wound closure. The use of penicillin is mandatory. Local chemotherapy is of scant value, and prophylactic systemic chemotherapy appears sufficient. Penicillin is a fundamental adjunct to the treatment of various forms of wound infection but cannot be considered a substitute for the eradication of the infecting nidus. It appears obvious that the pendulum has now swung in the favor of the patient with an open head injury and that, granted that his brain injury is not an irreversible one, his chances for survival have been greatly enhanced.

10. Gillies, H.: Note on Scalp Closure, Lancet **2**: 310, 1944. Balkin, S. G.; Dowman, C. E., and Klemperer, W. W.: Management of Extensive Scalp Defects in Craniocerebral Injuries, J. A. M. A. **128**: 70 (May 12) 1945.

11. Spurling, R. G.: Personal communication to the author.

12. Ireland, M. W.: The Medical Department of the United States Army in the World War: Neuropsychiatry, Washington, D. C., Government Printing Office, 1929, vol. 10.

13. Cushing, H.: A Study of a Series of Wounds Involving the Brain and Its Enveloping Structures, Brit. J. Surg. **5**: 558, 1918.

14. (*a*) Rowe, S. N., and Turner, O. A.: Observations on Infection in Penetrating Wounds of the Head, J. Neurosurg. **2**: 391, 1945. (*b*) Martin, J., and Campbell, E. H., Jr.: Early Complications Following Penetrating Wounds of the Skull, ibid. **3**: 58, 1946.

15. Schwartz, H. G., and Roulhac, G. E.: Craniocerebral War Wounds: Observations on Delayed Treatment, Ann. Surg. **121**: 129, 1945. Martin and Campbell.[14b]

16. Walker, A. E., and Johnson, H. C.: Penicillin in Neurology, Springfield, Ill., Charles C Thomas, Publisher, 1946.

EMERGENCY TREATMENT OF THE INJURED EXTREMITY

MATHER CLEVELAND, M.D.
New York

The various parts of the human body are probably injured by external traumatic agents in direct proportion to the percentage of body surface area of any given part to the whole. This regional distribution of wounds sustained in battle by United States troops has been studied and compared in our three major wars.

Since the upper and lower extremities comprise 61 per cent of the total body area and thereby offer almost two thirds of the target to the potential traumatizing agent, wounds or injuries of the extremities are sustained in that proportion in war and probably in peace. Since the wound or injury of the extremity is far less apt to terminate fatally than is that involving chest, abdomen or head, there is an even greater number of these casualties of the extremities which reach the hospital for treatment. Of the wounded in action, 73 per cent in the American Civil War, 81.6 per cent in World War I and 70.9 per cent in World War II had wounds involving the extremities.[1] World War I, which showed fewer survivors with wounds of the chest and belly, indicated that first aid and surgery had not kept pace with the increased destructive force of high explosive shells and high velocity small arms fire. The restoration of the balance with an appreciable improvement in salvage of casualties of the chest and belly, in the face of even greater destructive forces, is a tribute to first aid, resuscitation and surgery.

The final termination of hostilities, less than two years ago, gives an opportunity to take stock of the deaths and injuries sustained by our fighting forces during the forty-five months of war. While completely accurate figures are not as yet available, some estimate of our casualties may be permitted. The approximate figures reveal the following for all services:

Total casualties	1,735,219[2]
Killed in action, missing or died of wounds	270,956
Died from accidents outside of combat	83,305
Total deaths due to combat and training	354,261

It should be borne in mind that our civilian population, in sharp contrast to all other nations involved, entirely escaped physical injury in this war. This situation will never again be true.

These incomplete figures for war casualties are cited to give some basis for comparison between the injuries sustained by our troops and our civilian population during a like period. The National Safety Council[3] reported approximately 10,000,000 civilian accidents occurring annually or, roughly, 37,500,000 for the forty-five months of actual combat. Of these civilian accidents 333,465 resulted in death. Since the annual toll of injured who are permanently impaired is approximately 333,000, during the war years a rough total of 1,250,000 of our civilian population were permanently partially or permanently totally disabled by accidents.

The annual expense of this orgy of accidents to our civilian population is staggering, but quite in keeping with our budgetary trends. The total costs of accidents in 1945 was $5,100,000,000 and in 1946 $5,600,000,000. A breakdown of the 1945 costs, after discarding property damage, fire losses and other costs of occupational accidents, leaves a mere $2,700,000,000 to be accounted for as follows:

Wage loss	$1,900,000,000[3]
Medical expenses	300,000,000
Overhead cost of insurance	500,000,000

Medical expense, while enormous, is only 11 per cent of the total.

During the war years motor vehicle accidents and deaths dropped, due to gasoline rationing. Now, thanks to removal of this restriction and to the obsolescence of vehicles on the highways, this form of destruction and maiming of the human body is rapidly gaining preeminence. The accidents in the home maintained a steady high of about 5,000,000 a year, with an average of 32,800 fatalities annually for the past five years. Perhaps 120,000 to 130,000 civilians annually suffer permanent impairment due to these home accidents. Since there is no obvious suitable substitute for the home, where most of us spend a large part of our lives, some sharp reduction in the various booby traps which our shelters afford should be attempted.

The obvious dangers besetting a soldier, sailor, marine or coastguardman in certain aspects of training and in combat are fully appreciated. The hazards of civilian life are by no means as well understood or as carefully safeguarded as their importance warrants. That the civilian's chance of meeting sudden accidental death is about one tenth that of the men and women of all services mobilized during the past war, is, I doubt, fully grasped. With 354,261 deaths as a result of combat or injury—among the 14,000,000 men and women of all services mobilized—giving a mortality percentage of 2.5, should be compared the 333,465 accidental deaths among our 130,000,000 civilians—with a mortality per cent of 0.25. From the standpoint of life alone, the active participation in the war was only about ten times more hazardous than it was to be a civilian. If the very old and the very young who are under care and supervision were subtracted from the total of civilians, the discrepancy in risk of accidental death in civil life, compared to violent deaths in the armed forces, would doubtless be sharply reduced.

All these forms of death and maiming of the human body seem to be wanton waste and should be avoided or sharply curtailed. Perhaps they represent a survival of the old big three—War, Famine and Pestilence—which have in the past served to check populations. In our modern industrial United States, most of the population is reasonably fed and pestilence has yielded slowly to improved medical and sanitary measures. War and the accidents of civil life still claim a dreadful toll of our population. It has been fairly conclusively shown that almost 8 per cent of our population is injured annually by various accidents. An overwhelming majority of these injuries involve the extremities. It is my purpose to call to your attention briefly certain

From St. Luke's Hospital.

Read in a panel discussion on Emergency Surgery in the General Scientific Meetings at the Ninety-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., June 10, 1947.

1. From a table furnished by the Office of the Surgeon General, United States Army, Professional Service Division.
2. From data furnished by Dr. Howard A. Rusk, New York, and from data furnished by the Office of the Surgeon General, United States Army.
3. Accident Facts, Chicago, National Safety Council, Inc., 1946.

V 13
1947

measures which may be advantageously employed in the emergency treatment of these traumatized arms and legs.

EMERGENCY SPLINTING

Since simple or compound fractures are encountered with frequency in trauma involving the extremities, the proper emergency splinting of the leg or arm is of great importance to diminish pain and prevent further damage to the tissue.

Fractures of the Lower Extremity.—The Thomas ring splint with traction exerted by means of a boot strap or clove hitch over the ankle with the shoe kept on is admirable for fractures of the femur and shaft of the tibia and fibula. If such fractures must be transported any great distance beyond a point where plaster of paris may be employed, the patient with a fractured femur will travel more comfortably in a plaster of paris spica bandage extending from the toes to the rib margins of the affected side and to the knee of the opposite side, reenforced with a plaster of paris strut between the two legs. For a fracture involving both bones of the leg, if circular plaster is used, it should extend from the toes to the groin. These emergency circular plaster splints should be split to the skin with no circular constricting bandage over the fracture or distal to it.

Fracture of the Foot and Ankle.—As an emergency measure, a well padded wire ladder splint may be used, extending from the medial side of the leg around the foot to the lateral side, like a sugar tong. A posterior equally well padded wire ladder splint should be applied and the two splints should be secured by bandage.

Fractures of the Upper Extremity.—The Murray-Jones traction splint can only be safely utilized if the arm can be suspended at 90 degrees to the long axis of the body, so that countertraction is obtained against the chest wall and not in the axilla. This splint was therefore found highly impractical and even dangerous in military use where there were four litters in each ambulance. Hospital trains and planes do not allow room for this cumbersome apparatus.

Fractures of the Humerus: A large axillary pad and bandage or swathe fastening the arm to the side of the body, with a sling for the arm and forearm, is an effective and useful means of emergency immobilization.

Fractures of the Forearm, Wrist and Hand: A well padded wire ladder or basswood splint applied with circular bandage, with support afforded by a sling, is most efficacious for the emergency.

Again, if transport is required beyond a point where plaster of paris may be employed, a circular plaster of paris bandage well padded should be applied from above the elbow to the proximal palmar crease, or beyond if the fingers are injured. The hand should be dorsiflexed, and if the fingers are immobilized they should be in position of function. The elbow should be flexed at a right angle. If plaster of paris bandage is used to transport a fracture of the humerus as an emergency measure, a plaster shoulder spica or plaster Velpeau bandage may be used. Both have been found useful.

The position of the arm in emergency plaster of paris spica should be at 45 degrees of abduction and 45 degrees of protraction and medial rotation so that the hand and forearm lie in front of the body. The patient is most readily transportable in this position.

In the application of these emergency splints no definitive treatment of the fracture is implied. Comfortable and safe transportation is all that is required. A frequent careful check of the circulation of the extremity is essential, and the splitting of any emergency circular plaster splint to the skin should be insisted on. The skin should be heavily padded under all circular plaster splints.

RESUSCITATION OF THE INJURED

Our recent war experience in this matter of resuscitation has been summed up by Edward Churchill, who stated that "World War II started with the concept that plasma for the intravascular space and sodium chloride solution for the interstitial space were therapeutic measures adequate to reestablish equilibrium in a wounded man."[4] The fallacy of this belief was quickly established in all theaters of war. Whole blood is needed promptly to combat shock and blood loss, which go hand in hand. Every hospital which expects to receive and care for the seriously injured must be supplied with whole blood which can be put into immediate use to resuscitate the injured and carry them through the necessary surgical procedures to save life. By this immediate blood replacement many lives will be saved, as has been abundantly proved in recent military experience.

SURGICAL TREATMENT OF THE INJURED EXTREMITY

The first step is a careful examination of the injured extremity to determine the presence and extent of fractures, dislocations, wounds or injuries to soft tissue with unbroken skin. Every effort should be made to determine interruption of peripheral nerve supply to the extremity.

The wounded extremity should be carefully scrubbed with soap and water. No frenzied subsequent use of the sulfonamide drugs and/or penicillin will compensate for this ordinary simple surgical precaution to help eliminate surface contamination.

Débridement or surgical revision of a wound of the extremity is of the utmost importance. The saprophytic infections, such as those due to the Clostridia, flourish in the presence of dead or devitalized tissue. To prevent the rapid proliferation of these organisms, the medium which favors their growth must be removed. All major wounds with obvious destruction of underlying tissue should be explored with longitudinal incisions prolonging the wound. Viable skin should never be sacrificed, and all bone fragments should be preserved. Fascial planes should be widely opened by longitudinal and transverse incisions when necessary. Necrotic fat and subcutaneous tissue should be widely excised. Muscle that does not bleed readily should likewise be excised. All available dirt and foreign bodies should be carefully removed.

If there is any doubt of impending infection, it is wise to resort to delayed primary closure after the lapse of three to five days. Such practice of delayed primary closure of wounds by suture or skin graft, when necessary, was successfully accomplished in up

4. Churchill, E. D.: The American Surgeon, A. U. S., Surg., Gynec. & Obst. **84**: 529 (April 15) 1947.

to 85 per cent of the cases attempted in the European Theater of Operations. This primary closure of the wound, if successful, facilitates and hastens healing of the shattered bones and soft tissues. Convalescence is shortened and final reparative operation on bones, joints and nerves may be accomplished in a matter of a few months. Failure to close the wounds invites prolonged suppuration, with osteomyelitis following almost inevitably, as the night the day. If the wound is not closed, it should be dressed with fine mesh gauze —loosely placed, not packed—with a copious outside dressing and with the extremity immobilized by circular plaster of paris or skeletal traction if there is a fracture. The wound should not be dressed again until it is proposed to do the delayed closure, unless there is evidence of infection.

COMPOUND FRACTURES

The emergency treatment of these serious injuries consists primarily of converting them into simple fractures by wound excision or débridement, which preserves all fragments of bone, followed by delayed, or in some instances, immediate primary closure of the wound. The removal of loose bone fragments creates a later serious problem in bone replacement. The residuum of serious compound fracture problems remaining in our Army hospitals almost two years after the actual shooting war ceased involves for the most part soldiers needing bone replacement. The wounding agent rarely, if ever, does more than shatter the bone. The actual removal of these fragments was accomplished by the zealous surgeon, who left, in many instances, large gaps in continuity of the long bones, necessitating many subsequent grafting procedures. The immediate roentgenogram after wounding showed the shattered bone fragments, and the roentgenogram after the débridement showed their complete absence. On the other hand, when these fragments were left in situ and delayed primary closure was accomplished successfully, the shattered fragments melted into the callus and formed a new long bone shaft. These bone fragments are no more devitalized or menacing than is the bone graft which must subsequently be utilized to replace their loss. With adequate débridement and delayed or immediate primary closure, all or most of the bone fragments can and should be preserved. Should suppuration ensue, often only one or two fragments of bone will sequestrate while a considerable portion of the shattered bone will be reclaimed.

The reduction and fixation of the compound fracture during this immediate emergency period is of secondary importance. The encasement of the extremity in circular plaster of paris splints is usually a temporary measure to allow transportation, or in cases involving an upper extremity, to make the patient ambulatory. No fracture of the femoral shaft can be held reduced by means of a plaster of paris spica. By all means the safest and most effective definitive treatment of most of these compound fractures is by skeletal traction. This means prolonged hospitalization and consequent heavy expense. Those who served in the armed forces realize fully the advantage of skeletal traction, in which muscles retain their tone and adjacent joints do not stiffen.

Internal fixation of these fractures may be utilized by the trained surgeon where the need is indicated. Such treatment can be employed with relative safety two weeks after the primary closure is healed and in some instances may be performed simultaneously with the closure of the wound.

AMPUTATIONS

There is a total of 17,000 major amputees as the aftermath of World War II. The number of civilians who lost one or more of their limbs during the same period has been reported at 80,000. The problem of amputation is always present in traumatic surgery involving the extremities. The indications for amputation should be clearcut. This is an operation of necessity and not of choice or election.

The surgeon decides to amputate immediately as an emergency procedure only when a limb or substantial portion of it is irretrievably damaged or avulsed, or a nearly complete traumatic amputation exists. Demonstrable complete loss of blood supply to a portion of a limb, with the main artery or arteries destroyed by the trauma, usually means amputation. The remote chance of saving a limb by operative procedures designed to reestablish arterial circulation is beyond the scope of this paper. Operations of this type were attempted during the recent war soon after wounding, but they are time consuming and lead to neglect of other seriously wounded, and success was so rare that at this present stage of vascular surgery these operations cannot be recommended as a routine emergency measure. With a single casualty involved, in civil practice, this observation may not hold.

Conservation should be the rule in emergency amputations. No definitive procedure should be attempted at this time. This plan was followed with great success in the Army Medical Corps.

All gunshot and traumatic wounds of the extremities, with compound fractures, are potentially infected, and it is essential to treat them as such. An open circular amputation at the most distal point possible will almost certainly insure a satisfactory primary healing of the flaps at the site of election at a later date. If the site of election is used as a primary procedure and the skin flaps are closed, it is an invitation to disaster from which the unwary surgeon may not be lucky enough to extricate the patient. A considerably shorter stump than should have been necessary will result if infection takes place.

The circular amputation should be utilized to the fullest extent by civilian surgeons who treat traumatic wounds of the extremities. It is, in truth, a circular amputation and is ill described as a guillotine, which implies a straight cut through the limb.

The circular amputation is performed as follows: At the most distal point of viability, a circular cut is made through the skin around the extremity. The skin retracts of itself approximately 1 inch (2.5 cm.), and at this point a second circular cut is made through the muscles. The cut muscles in turn retract approximately 1 inch, and at this level the bone or bones are divided without any periosteal stripping. The stump is thus an inverted cone with the skin about 2 inches (5.1 cm.) longer than the bone. After release of tourniquet, all bleeding points and vessels are ligated. No injection of the nerves is attempted. A loose fine gauze dressing is applied to the stump under the skin. A roll of sterile stockinet is placed over the amputated stump and adherent substance painted on the skin. The stockinet is then rolled down smoothly over the adherent skin, and traction should be instituted at once, except

V 13
1947

where infection has been obviously present in the amputated limb. Skin traction, in this event, should be delayed until the passage of twenty-four to forty-eight hours.

With continuous adequate traction by weight and pulley over the foot of the bed, these circular amputations heal rapidly and satisfactorily. Definitive amputation at the elective site can be performed later with the patient entering into the decision, which is impossible in the period of emergency.

Penicillin and/or sulfonamide drugs are valuable aids, but not a substitute for sound surgical procedures. Tetanus was reduced almost to the vanishing point among our wounded. There were only 5 cases recorded among 11,000,000 immunized soldiers. Some 14,000,000 of our population will require only a booster dose of tetanus toxoid after an accidental wound to be protected from this disease. These facts suggest the advisability of a more general immunization of our population with tetanus toxoid.

Those of us who served with the armed forces in a capacity which allowed observation of the wounded from the forward echelons back to the zone of the interior feel very strongly that the early emergency surgical procedures and resuscitative measures saved countless lives and insured the success of the later reparative and reconstructive surgical procedures practiced in the large general hospitals.

EMERGENCY SURGERY

General Summary

R. ARNOLD GRISWOLD, M.D.
Louisville, Ky.

You have heard this morning an excellent résumé of the "advances" made in various surgical fields in the treatment of injuries during World War II. The presentations of Drs. Woodhall, Imes, Blades and Cleveland and Professor Sedden have covered the best of the collected knowledge of our military forces and represent the methods of treatment which had been evolved and more or less standardized by the end of the war. For a great many of you the principles and methods brought up this morning were new principles and methods which had been arrived at after experience in this war. However, the only really new things that you have heard this morning were the description of modern methods of resuscitation using large quantities of blood and blood substitutes and the widespread employment of chemotherapy and antibiotics in emergency surgery. With these two exceptions everything that you have heard this morning may be found in the medical histories of the United States and British armies from World War I and in the surgical literature during and immediately following World War I. This program represents merely the rediscovery of methods and principles which had been arrived at previously, but which had been forgotten during the intervening years.

The surgery of trauma is the oldest and the most important form of surgery, yet in teaching and in practice it is, even today, the most neglected form of surgery except for brief interludes during war. As indicated in Dr. Cleveland's paper, the treatment of trauma is just as important in peace as in war. Why is it, then, that to most of you who began your medical education after World War I the principles which were brought up this morning seem new? It is because of the neglect of the professional leaders in surgery, the teachers and the professors in our schools of medicine. The academic interests of these men have not been in the surgery of injury but in the more difficult and complicated though less common forms of surgical gymnastics. I have made ward rounds with professors of surgery who were responsible for the treatment and teaching of fractures and have heard them pass by such cases with this statement, "That's only a fracture—Let's look at this interesting gallbladder case." Likewise, professors of orthopedic surgery treating and teaching fractures will pass by a fracture in order to show the students and residents an interesting case of scoliosis or poliomyelitis. Instead of having an interest in the surgery of injury, many professors have been more interested in determining how many pounds or feet of the abdominal contents or how much of the pulmonary tree or the brain can be removed and still have a live patient. Teachers are often appointed and rated because of their research activities, little of which has had anything to do with the surgery of injury, but instead has been directed to the more "scientific" branches of surgery.

Since the student apes his teacher it becomes difficult to interest the student, the intern or the resident in such elementary procedures as the treatment of wounds or fractures. In imitation of his professor he wants to learn how to take out more stomach than anybody else, more lung than any one else, or to play more tunes on the sympathetic or parasympathetic nervous systems. He finishes a long period of graduate training and becomes a specialist certified by one of the boards, which testifies to his competence in the art and science of surgery. He may be highly competent to resect carcinoma of the stomach in the few persons whom he will meet in his years of practice who need such an operation. He is often, however, totally incompetent to deal with the many patients whom he will see in practice suffering from minor and major injuries. These injuries, in peace as in war, affect the health, the happiness and the lives of many more persons than do ulcers of the stomach, cancer of the lung, tumors of the brain or many other subjects of current surgical research interest.

In the early 1920's when I was still in medical school, an older surgeon said to me, "If you want to specialize in surgery, specialize in the treatment of injury or in congenital malformations. Some day there will be a drug which will cure all infections and another drug which will cure all tumors. Then all of surgery will be gone except for trauma and congenital malformations." The truth of this statement may be closer today than we think. At any rate, the increased mechanization, in peace as well as in war, at home, in industry, on the highways and in the air, is bringing us more and severer types of trauma, while the treatment of trauma is neglected by our professional leaders, who are more interested in philosophic elective rather than active emergency surgery.

I hope that, as a result of symposiums such as this, interest in the surgery of trauma and the teaching of the surgery of trauma may increase and continue in peacetime and will not have to be revived and rediscovered when we get into our next world conflict.

Read in a panel discussion on Emergency Surgery in the General Scientific Meetings at the Ninety-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., June 10, 1947.

THE ACCIDENT PROBLEM

EDWARD PRESS, M.D.
Chicago

The prevalence of accidents especially among children has recently been brought into the limelight by the reduction in the number of cases and the increased control of many infectious diseases. This has occurred largely as a result of improved sanitation and the relatively widespread use of immunization, chemotherapy and antibiotics. As a result, in 1943 accidents were the leading cause of deaths in all children in the United States from 1 to 19 years of age.[1] Moreover, the fact that in the very young and the very old accidents are not the chief cause of death should not be taken to imply that these groups have a decreased incidence of accidents. The contrary is true. In 1944 the average death rate for accidents in all age groups in the United States was 71.8 per 100,000, that for infants under 1 year of age was 110.9 and that for persons 75 years of age and over, 559.3.[2] In general the accident rate did not decline, but this factor was superseded by a much larger number of deaths from such causes as prematurity and pneumonia in infancy and cancer and heart disease in old age. Nevertheless, even when the rates for all ages are pooled, accidents still lead such notorious killers as tuberculosis, nephritis and pneumonia. In 1944 accidents ranked fourth as a cause of death for the population as a whole, and this cause was preceded only by heart disease, cancer and intracranial vascular episodes.[3]

Not only do accidents play the leading role in childhood mortality but in absolute numbers they are increased in infancy and old age. They are saved from the dubious distinction of being leading causes of death in these two categories not by the foresight, which is patently lacking, of those whose duty it is to care for infants and aged but by nature, which has permitted even more deadly plagues than accidents to beset these age groups.

PREVENTABILITY

It has become generally recognized that accidents seldom "just happen." They are nearly always caused by definite factors. Although it has become almost trite to say that accidents can be prevented, a few specific examples may help to convince the doubter and those in whom it is difficult to overcome the inertia of *laissez-faire*. In 1944 1,663 persons were killed by collisions between automobiles and trains [2] in the United States. It is obvious that one may expect a considerable reduction in deaths if 50 per cent or more of these crossings are replaced by overpasses. Or if 5 per cent of auto accidents are due to defective brakes and stoplights, it is only reasonable to anticipate an appreciable decrease in accidents due to these causes when a car inspection program is put into effect. Similarly, screening fireplaces, putting gates at the head of stairways, installing fire escapes and proper lightning rods, the use of rubber mats and hand grips in bath tubs and making certain that all firearms in the house are unloaded are only a few of the many preventive measures which can undeniably decrease the accident toll. The National Safety Council [4] has computed that nearly 350,000 fewer persons have died of accidents since 1913 than would have been killed had the 1913 rate continued. In view of the huge increase in the number of motor vehicles and airplanes since then, organized safety activities have undoubtedly contributed to this reduction in accidental deaths. It has been said [5] that 90 per cent of all accidents are preventable. E. S. Godfrey Jr.[6] has expressed the opinion that four fifths of all accidents to children under 5 years of age are due to errors of omission or commission by adults.

ACCIDENT PRONENESS

It has been conclusively shown that certain persons are much more likely to have accidents than others.[7] All are familiar with unusually careless or extremely absent-minded persons or with those who are always in such a hurry that they dash across streets with little regard for traffic when they are pedestrians and cut in and out of traffic with practically no concern for others when they are in the driver's seat. The factors of worry, fatigue, grief and anxiety tend to cause preoccupation that interferes with alertness and observation and decreases reaction time. All these factors are important in individual accident prevention. Some persons are more prone to these predisposing trends than others, and they often have repeated accidents. Psychologic and/or psychiatric factors are frequently responsible for the presence and persistence of these and other similar personality traits. Many children use accidents and injuries to attract attention and gain sympathy. Children, and adults also, are far more reckless when they are angry; a person who angers easily and repeatedly is much more likely to have accidents than one who is well adjusted and able to control his temper. Rebellious children and those who suffer from fancied or true injustices or slights often have ideas such as: "Wait till I'm crippled or dead, then you'll be sorry you were mean to me." They are preoccupied with these thoughts and often both consciously and unconsciously take more chances than are necessary, almost welcoming accidental injury.

It is much more difficult to identify accident-prone persons than accident-prone circumstances. Although the latter are far simpler and easier to correct and therefore represent at present the bulk of most accident prevention programs, the former merit further investigation and study. One large concern, identifying accident-prone persons by the rather costly process of waiting until they had three or four accidents, was able to cut its gross accident rate down 80 per cent (statistically significant figures) in a single year. This was done by the simple but not always practical expedient of discharging the accident-prone persons.[7a]

RELATION OF ACCIDENTS TO PRIVATE PHYSICIANS AND HEALTH DEPARTMENTS

Why should physicians and health departments concern themselves with accident prevention? Diagnostic acumen is not required to tell whether or not an accident has occurred; vaccines are not going to immunize one against accidents, and besides, are not most accidents due to motor vehicles? Why not let the police department take care of accident prevention? Physicians

1. Accident Facts, 1945, Chicago, National Safety Council.
2. Vital Statistics—Special Reports, United States Public Health Service, National Office of Vital Statistics, Federal Security Agency, Aug. 2, 1946, vol. 25, no. 8.
3. Vital Statistics—Special Reports, United States Department of Commerce, Bureau of the Census, June 26, 1946, vol. 25, no. 6.
4. Accident Facts, 1946, Chicago, National Safety Council.
5. Learned, R. A.: No More Accidents, Hygeia **16:** 623-625 (July) 1938.
6. Godfrey, E. S., Jr.: Role of Health Department, Am. J. Pub. Health **27:** 152-155 (Feb.) 1937.
7. (*a*) Rawson, A. J.: Accident Proneness, Psychosom. Med. **6:** 88-94 (Jan.) 1944. (*b*) Ackerman, N. W., and Chidester, L.: "Accidental" Self-Injury in Children, Arch. Pediat. **53:** 711-721 (Nov.) 1936. Bristol, L. D.: Medical Aspects of Accident Control, J. A. M. A. **107:** 653-656 (Aug. 29) 1936. Stack, H. J.: Mental Causes of Child Accidents, Ment. Hyg. **15:** 283-289 (April) 1931. Tramer, M.: Psychogenic Factors, Schweiz. med. Wchnschr. **59:** 1398 (Dec. 21) 1929.

V 13
1947

already have more than they can effectively do. This is the erroneous reasoning of many persons. However, motor vehicle accidents do not cause most of the accidental deaths. In 1945 according to estimates of the National Safety Council they caused only about one third of the deaths. Even in the control of accidents due to motor vehicles physicians can be of definite assistance to the police by helping to keep persons with relevant physical handicaps, such as impairments of hearing or vision, epilepsy or Ménière's syndrome, from driving. One of 12 drivers involved in fatal accidents in 1943 had some physical handicap. Of the remaining deaths, in which automobiles were not instrumental, almost half occurred in the home.[7] It is in this field that physicians and health department personnel can be more effective than almost any others. From the point of view of availability alone, for example, physicians, public health nurses and other persons in similar positions are welcomed in hundreds of thousands of homes annually. Members of the police department, however, even though entering homes only to inspect for safety hazards, would probably be regarded as violating the sanctity of the home and would be greeted with aversion if not open hostility.

Moreover, how much fundamental difference is there between the inoculation by a physician or public health nurse of the seeds of caution against danger by advocating such a practice as keeping pot handles turned back from the stove edge and the injection by the same person of "antiseeds" of diphtheria beneath the skin? In both cases material has been furnished which is likely to save its recipient from death or disability due to a specific factor, in the first instance severe scalding and in the second diphtheria.

Any problem that confronts the physician with 9,800,000 injuries severe enough to cause disability in a single year in the United States [1] urgently demands his attention. If he is in a position to help in the prevention of these injuries, which he usually is, there is a moral obligation for him to do so.

Granted that accidents are a widespread and serious hazard that can be prevented and granted, further, that private physicians and health department personnel are in a particularly favorable position to undertake a considerable portion of this task of prevention, just what are the best ways to accomplish this?

SUGGESTED SAFETY ACTIVITIES

Many of the obvious and more effective group safety measures are well outlined and their details covered in pamphlets and manuals available through the national or local safety councils. Such measures as home safety check lists, organization of home and farm safety councils, the basic principles of the three E's, i. e., Engineering, Education and Enforcement,[8] have been well described by others, and their details need not be repeated here. There are, however, several other safety measures less commonly thought of and publicized, which represent a fertile and as yet untouched field.

1. *Home Safety Check Lists in Connection with Home Accidents and Immunizations.*—The distress of mothers at the physical pain and struggling of infants during inoculation against the various communicable diseases can be capitalized on. Whenever these services are performed, there is often the stated or implied wish of the mother to avoid the infant's suffering even at the expense of her own. "If I could only take the injection for you" is not an uncommon expression at the time. This would be an excellent opportunity to suggest that there is one form of immunization that she can take for the baby. That is, she can prevent his injury or death from accidents which by that time, at the age of 8 months, constitute the chief cause of fatalities. A thorough check list on home safety (obtained free from the health department or the safety council) could be presented to the mother at this time to be taken home and filled out carefully. Then on her subsequent visit the following month, the completed list would be reviewed by the office nurse or physician. This procedure could also be easily adapted to well-baby conferences.

The numerous accidental lacerations, contusions, burns and other injuries that physicians are frequently called on to treat represent a psychologically receptive opportunity for safety measures. Advantage should be taken of the forceful heightening of interest in accidents at this time. If the physician is called to the home, a few words about various home safety hazards that are observed will have considerable weight. If the patient makes an office call, this might be a good time to distribute a home safety check list. Of course common sense and common courtesy would postpone these measures if the injury was a critically serious one. In general, however, patients would be impressed by the physician's interest, and their confidence in him would be increased.

2. *Reporting of Accident-Prone Diseases.*—Epilepsy, alcoholism, addiction to drugs, Ménière's syndrome and any other illnesses that subject the public to undue hazards when they exist in vehicular drivers should be made reportable in confidence to the proper authorities. By the revocation or denial of driver's licenses to persons with these diseases many accidents would be prevented. There is just as much moral and common-law background to uphold this practice as there is to justify reporting cases of smallpox, meningitis or plague. In both instances the existing disease is a decided threat to the welfare of the public. During World War II I personally observed many patients with chronic alcoholism, epilepsy and occasionally addiction to drugs. The illness was proved beyond doubt in military courts and hospitals, and the patient was discharged from the army to resume occupation that involved in some instances continuous driving. In spite of repeated efforts through and around available "channels" nothing could be done to prevent this. The chief drawback in the case of army personnel was legislative provision that no medical information injurious to the physical or mental health of the soldier could be released.[9] Apparently it is legislative drawbacks that hinder the general application of a policy of reporting accident-prone diseases in United States civilian life too. However, laws are for the protection of society, and physicians should take the lead in changing any such legislation. In parts of Canada [10] mental hospitals routinely report some of these diseases to the motor vehicle department.

3. *Routine Physical Examination for Drivers.*—A general physical examination including regular and stereoscopic vision, hearing, reaction time and other relevant items should be required for the operation of motor vehicles and should be repeated periodically.

8. Banash, J. L.: Public Safety: A Brief for Everyone, Proc. Staff Meet., Mayo Clin. **14**: 328-333 (May 24) 1939.

9. Fleming, P. B.: Personal communication to the author, May 1946.

10. (*a*) Rowan, A. H.: Prevention of Motor Traffic Accidents, Canad. Pub. Health J. **30**: 377-381 (Aug.) 1939. (*b*) Phair, J. T.: Survey of Control Measures in Highway Accidents in Canada, Canad. Pub. Health J. **30**: 382-386 (Aug.) 1939.

This examination would not supplant the previous suggestion, as the accident-prone diseases already enumerated have few objective signs and could be and are easily concealed by the candidate. Most applicants for a driver's license who have those diseases falsely answer the question pertaining to them on the application blank. Many persons have recommended uniform requirements with regard to driving ability and age for the licensing of drivers in all the states. Some, e. g. Walsh,[11] have included compulsory initial and periodic physical examination for the drivers as well as periodic inspection of the vehicles. He also suggested the creation of a post of assistant secretary of commerce for ground motor traffic and a Civil Automobile Authority analogous to the Civil Aeronautics Commission. In British Columbia the licensing bureau routinely tests the hearing and reaction time as well as the vision of its candidates for a driver's license.[10b]

4. *Identification Tags.*—The use of identification tags in the last war proved extremely helpful. Similar disks have been suggested for use by civilians.[12] This would be especially applicable to adults who travel alone and to unaccompanied children or small children when taken into crowded areas where they might become lost. Such items as blood group, presence of serum sensitivity, abnormal bleeding tendency and tetanus immunization plus identifying data could be included.

Death Rates for Selected Causes per 100,000 Population in the United States for 1944

Disease	Rate[17]	Disease	Rate[17]
Typhoid and paratyphoid	0.4	Scarlet fever	0.3
Dysentery	1.4	Diphtheria	0.9
Diarrhea and enteritis	9.9	Cerebrospinal meningitis	2.1
Syphilis	11.3	Poliomyelitis	1.0
Measles	1.5	Malaria	0.4
Whooping cough	1.4	Acute rheumatic fever	1.1
Chronic rheumatic heart disease	19.5	Diseases of pregnancy, puerperium and childbirth	4.8
Pellagra (nonalcoholic)	0.8	Alcoholism	1.4
Total death rate for all the foregoing diseases			58.0
Total death rate for accidents			71.8

5. *Bicycle Safety Program.*—The registration and periodic inspection of bicycles with the requirement of certain essentials such as effective brakes, lights, reflectors, warning bell and perhaps even small rear view mirrors should be made compulsory for all bicycles that use vehicular traffic lanes. In addition this registration would provide an opportunity for education in safe bicycle-riding habits.[13] At present most of the bicycle registration plans in this country are primarily concerned with the prevention of theft and secondarily with the distribution of some relevant safety pamphlets. I do not know of any registration plans in the United States that require effective safety devices such as brakes and the others previously mentioned.

6. *Mental Hygiene Clinic for Accident-Prone Children.*—In psychiatric clinics which could be established or are already in existence children with unusual proclivities for accidents could be treated. Teachers, physicians, public health nurses and social workers could refer children there.

7. *Integration of Accident Prevention Activities in Health Departments.*—Several groups have studied the problem of the integration of accident prevention activities in health departments and have contributed a variety of important ideas and suggestions. Notable among these groups is the Subcommittee on Accident Prevention of the Committee on Administrative Practice of the American Public Health Association.[14] Donald B. Armstrong, the chairman of this committee, and an associate[15] have recently published an excellent summary of suggested methods for integrating an accident prevention program into the structure of a local or state health department. Reprints of the two chief articles concerned[16] are available on request and should be carefully perused by all physicians whose part-time or full-time duties are concerned with health departments. In these articles specific accident prevention activities are set forth that can be properly accomplished by each of the chief subdivisions of a health department.

There should be a continuous program of inservice training in the local health departments. Manuals for both physician and nurse are available, and several other publications are in the process of production. These manuals as well as a fairly large number of pamphlets, booklets and throwaways and a few motion picture films on many aspects of home safety are available.

In most of the more populous states it would be desirable to have a full-time state director or coordinator of safety activities. His functions would be similar to those of both the health officer and the vital statistics bureau in local health departments. Liaison and cooperation with existing statewide safety groups and the organization of new ones would also come under is jurisdiction.

National health agencies such as the United States Public Health Service, the National Research Council, the Children's Bureau and the American Medical Association also could play a more prominent part in accident prevention. Educational programs, fellowships for training in the related field of public health and accident prevention, budgetary provision for safety coordinators in grants to state health departments, pamphlets and overall organization plans are some of the possibilities.

8. *Schools of Public Health.*—The education of physicians and nurses at schools of public health is generally lacking in accident prevention technics. Although hours and hours are spent on the prevention of communicable disease, the sanitation of water and milk and on nutrition, little or no time is spent on integrating safety routines into health department activities. On the assumption that the prevalence of a dangerous condition and the relative effectiveness of control measures are indexes of the amount of time and effort that should be spent in teaching certain subjects, one observes a pronounced disproportion as far as instruction in accident prevention is concerned.

In the accompanying table death rates from the major water-borne and food-borne diseases, the diseases of pregnancy and the most significant vitamin deficiency disease are enumerated.[17] The sum of all these death rates, 58.0 per 100,000, is well below the comparable death rate for accidents, which is 71.8. Despite this fact, most of the schools of public health in the country

11. Walsh, M. N.: Accident Prevention, Minnesota Med. **25**: 451-455 (June) 1942.

12. Joanon, P.: Desirability for Health Identification Discs or Cards for Use in Accidents, Ann. d'hyg. **17**: 272 (June) 1939.

13. Berndt, F.: Control of Bicycles as Means of Education for Prevention of Traffic Accidents in Workers, Zentralbl. f. Gewerbehyg. **16**: 61-62 (March) 1939.

14. (*a*) Accident Prevention—Essential Public Health Service: Program Developed by the Subcommittee on Accident Prevention of the Committee on Administrative Practice of the American Public Health Association, Am. J. Pub. Health **35**: 216-218 (March) 1945. (*b*) Accident Prevention Engages the Attention of State Organizations, Subcommittee on Accident Prevention of the Committee on Administrative Practice of the American Public Health Association, The Spotlight, January 1944.

15. Armstrong, D. B., and Cole, W. G.: Accident Prevention, Am. J. Pub. Health **36**: 869-874 (Aug.) 1946.

16. Accident Prevention.[14a] Armstrong and Cole.[15]

17. Based on: Vital Statistics—Special Reports, United States Department of Commerce, Bureau of the Census, Aug. 2, 1946, vol. 25, no. 8.

V 13 1947

spend a much greater amount of time even on one of the aforementioned causes of death than on accident prevention. Some of the schools have no regularly scheduled work on this subject at all. Other factors besides mortality enter into the significance of the diseases enumerated in the table, but these figures are being used to emphasize the need for added attention to safety in the curriculum. Moreover, other factors also enter into the importance of accidents, such as the immense amount of injury and disability short of death (340,000 permanent physical impairments in 1945 [4]); property damage; economic loss of wages, and decrease in production as a result of the accidentally caused disabilities.

SUMMARY

The prevalence and seriousness of the accident hazard indicates the need of an effective campaign against preventable accidents. It has been estimated that perhaps 90 per cent of all accidents are preventable. The intimate home and family relations of private physicians and health department personnel give them natural opportunities for safety work, especially in the home. Physicians are in a position to further the adoption of several of the safety activities which have been suggested.

188 West Randolph Street, Room 2200.

INTERNAL DERANGEMENTS OF THE KNEE

PAUL R. LIPSCOMB, M.D.
and
MELVIN S. HENDERSON, M.D.
Rochester, Minn.

Between 1782 and 1803 William Hey [1] published numerous papers on "internal derangements" of the knee. For the next hundred years little more was learned about these conditions. However, from the turn of the present century until 1935 much advancement was made, particularly in respect to the diagnosis, description of pathologic changes and the treatment of lesions of the meniscuses. Among those in years past who contributed much to knowledge of internal derangements were Sir Robert Jones,[2] Morison,[3] Lane,[4] Fisher,[5] Bristow,[6] Fagge,[7] Bosworth,[8] Campbell,[9] Goldthwait,[10] Surls and Osgood,[11] King [12] and Shands.[13]

In recent years hundreds of articles have been written, supposedly pathognomonic diagnostic tests have been developed and numerous surgical technics have been advocated for lesions of the meniscuses of the knee joint. Each of these, according to the individual proponent concerned, is best; yet the good results obtained in any large series of cases rarely exceed 80 per cent. In fact, during the recent war the good results secured rarely reached this percentage. We doubt, however, that it is feasible to compare results achieved among military personnel with results obtained among civilians, chiefly because follow-up studies in the former instance are so short.

Among recent articles in English pertaining to this subject, and in which large series of cases are reviewed, are those by Mauck,[14] Murray,[15] Mandl,[16] MacAusland,[17] Levinthal [18] and Smillie.[19] The experimental work of Brantigan and Voshell [20] and Abbott and associates,[21] although not concerned with specific derangements, has so clarified our knowledge of the mechanics of the knee that we feel that especial appreciation is due these workers.

One of us (Henderson [22]) reviewed the records of patients who had suffered internal derangements of the knee as seen at the Mayo Clinic to and including 1933. We have reviewed the cases in which arthrotomy of the knee was performed at the Mayo Clinic from 1934 through 1944 for internal derangements of this joint, and have compared our series with that of one of us (Henderson) and added such other data as seem pertinent. Dr. Ralph E. DeForest helped in compiling the statistics used in this paper. We shall for the remainder of this paper refer to the earlier (Henderson's) review as series 1 and to the previously unreported group of cases as series 2.

In series 2, arthrotomy was carried out three hundred and twenty-one times for 318 patients who had derangements of the semilunar cartilages. There were 251 male and 67 female patients, a ratio of almost 4 males to 1 female. The average age of this group of patients was 33.8 years.

Including series 1 and series 2, arthrotomy was done six hundred and sixty-four times for 655 patients who had derangement of a semilunar cartilage. A follow-up study of 604 (92.2 per cent) of the 655 patients was possible. Whereas in series 1 there was a ratio of ten tears of a medial cartilage to one tear of a lateral cartilage, this ratio decreased to five tears of a medial cartilage to one tear of a lateral cartilage in series 2. This apparent increase in damage to the lateral cartilage

From the Section on Orthopedic Surgery, Mayo Clinic.

Read before the Section on Orthopedic Surgery at the Ninety-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., June 12, 1947.

1. Hey, W.: Practical Observations in Surgery, Illustrated by Cases, ed. 3, London, T. Cadell & W. Davies, 1814.
2. Jones, R.: Disabilities of the Knee-Joint, Brit. M. J. **2:** 169-172 (Aug. 5) 1916.
3. Morison, R.: Injury to the Semilunar Cartilages of the Knee, Lancet **1:** 604-607 (Feb. 27) 1909.
4. Lane, W. A.: Some of the Common Injuries of the Knee-Joint and Their Consequences, Brit. M. J. **1:** 537-539 (March 11) 1911.
5. Fisher, A. G. T.: Internal Derangements of the Knee-Joint, New York, The Macmillan Company, 1924.
6. Bristow, W. R.: Internal Derangement of the Knee-Joint, J. Bone & Joint Surg. **17:** 413-450 (April) 1925.
7. Fagge, C. H.: Injuries of the Semilunar Cartilages, Clin. J. **44:** 81-87 (March 17) 1915; On Injuries of the Semilunar Cartilages, Brit. J. Surg. **15:** 273-278 (Oct.) 1927.
8. Bosworth, D. M.: An Operation for Meniscectomy of the Knee, J. Bone & Joint Surg. **19:** 1113-1116 (Oct.) 1937.
9. Campbell, W. C.: Internal Derangement of the Knee, Surg., Gynec. & Obst. **52:** 568-572 (Feb.) 1931.
10. Goldthwait, J. E.: Knee-Joint Surgery for Nontubercular Conditions, Boston M. & S. J. **143:** 286-290, 1900.
11. Surls, J. K., and Osgood, R. B.: Internal Derangements of the Knee: A Review of the Subject with a Report Based on One Hundred and Eighty-One Operated Cases, J. Bone & Joint Surg. **5:** 635-697 (Oct.) 1923.
12. King, D.: The Function of Semilunar Cartilages, J. Bone & Joint Surg. **18:** 1069-1076 (Oct.) 1936; The Healing of Semilunar Cartilages, ibid. **18:** 333-342 (April) 1936.
13. Shands, A. R., Jr.; Hutchinson, J. L., and Ziv, L.: Derangements of the Semilunar Cartilages of the Knee: A Clinical and Experimental Study, South. M. J. **29:** 1045-1050 (Nov.) 1936.
14. Mauck, H. P.: Severe Acute Injuries of the Knee, Am. J. Surg. **56:** 54-63 (April) 1942.
15. Murray, C. R.: Complicating Factors in the Treatment of Injuries to the Menisci of the Knee Joint, Am. J. Surg. **55:** 263-273 (Feb.) 1942.
16. Mandl, F.: Observations and Problems on Operation for Lesions of the Semilunar Cartilage, J. Internat. Coll. Surgeons **5:** 63-68 (Jan.-Feb.) 1942.
17. MacAusland, W. R.: A Study of Derangement of Semilunar Cartilages Based on Eight Hundred and Fifty Cases, Surg., Gynec. & Obst. **77:** 141-152 (Aug.) 1943.
18. Levinthal, D. H.: Surgery of Derangements of the Knee Joint, S. Clin. North America **23:** 181-203 (Feb.) 1943.
19. Smillie, I. S.: Injuries of the Knee Joint, Baltimore, Williams & Wilkins Company, 1946; Observations on the Regeneration of the Semilunar Cartilages in Man, Brit. J. Surg. **31:** 398-401 (April) 1944.
20. Brantigan, O. C., and Voshell, A. F.: The Mechanics of the Ligaments and Menisci of the Knee Joint, J. Bone & Joint Surg. **23:** 44-66 (Jan.) 1941.
21. Abbott, L. C.; Saunders, J. B. deC. M.; Bost, F. C., and Anderson, C. E.: Injuries to the Ligaments of the Knee Joint, J. Bone & Joint Surg. **26:** 503-521 (July) 1944.
22. Henderson, M. S.: Bucket-Handle Fractures of the Semilunar Cartilages, J. A. M. A. **90:** 1359-1361 (April 28) 1928; Derangements of the Knee Joint, South. Surgeon **3:** 123-139 (June) 1934; Injuries to the Semilunar Cartilages of the Knee Joint, Surg., Gynec. & Obst. **51:** 720-726 (Nov.) 1930.

is, we believe, the result of better diagnosis today in conditions of the knee joint. We are confident that in previous years instances of damage to the lateral cartilage were missed.

The diagnosis of meniscal lesions, in the majority of cases, still can be made best by a carefully taken history

TABLE 1.—*Incidence of Tears of Meniscus Articularis*

	Semilunar Cartilage					
	Medial			Lateral		
	Arthrotomy Performed,	Tears		Arthrotomy Performed,	Tears	
Series	Times	Number	Percentage	Times	Number	Percentage
1 (through 1933).....	313	204	65.2	30	17	56.6
2 (1934 through 1944)...	265	214	80.8	56	39	69.6
Total.....	578	418	72.3	86	56	65.1

Total number of arthrotomies: 664.
Total number of tears of cartilage: 474 (71 per cent).

in which the triad of locking, pain and swelling is elicited. This triad was present in 225 (70 per cent) of the cases in series 2. In many cases the knee may lack only a few degrees of complete extension. It is difficult to determine this lack of extension when the patient is lying or sitting. However, we have found that if the patient is instructed to stand with knees extended and toes even—that is, to toe a fine, straight crack in the floor—the physician often will be able to ascertain from a profile view that the involved knee does not extend quite as fully as does the normal knee. The patient is often unaware of this, but does complain of a feeling of insecurity in the knee. We have used this simple test for a number of years. Although we now carry out McMurray's test,[23] we think that McMurray's test usually does not aid us materially in making a diagnosis of a meniscal tear or in localizing the tear. We have had too little experience with the grinding test of Apley[24] to comment on its merits. Similarly, we have not had experience with pneumoarthrography, and we are not qualified to speak on its merits. In table 1 are shown the number and percentage of tears encountered at the time of operation in both the series. It is apparent, on the basis of an analysis of these figures, that the diagnostic accuracy in the two series has improved approximately 16 per cent in the case of lesions of the medial semilunar cartilage and 13 per cent in the case of lesions of the lateral semilunar cartilage. This higher percentage of accurate diagnosis in series 2 is the result of increased experience gained by the careful taking of histories and more careful recording of our observations made at operation. It is our opinion that a carefully taken history contributes more to a correct diagnosis than do all of the special tests and roentgenograms. It must be remembered that the diagnosis is concerned with subjective symptoms and that many patients do not tell their stories well. Hence, great patience must be exercised by the surgeon in questioning them.

The commonest type of fracture of these cartilages encountered in series 2 was the bucket handle type, so named by Sir Rutherford Morison[25] because of the morphologic similarity of the lesion to the leather bucket handles of pails used in mines. The preponderance of this type of fracture in series 2 agrees with the figures of most other writers on the subject, who have reported that about 50 per cent of fractures of the semilunar cartilage were of the bucket handle variety. The frequency of occurrence of the tears in other parts of the cartilage in series 2 can be seen in table 2. It would seem, by analysis of this table, that on inspection of the joint through an anterior incision it would be quickly discernible that there was a definite tear of that portion of the cartilage which was visualized in about three fourths of the cases in which a pathologic process was found.

In the second series of cases 3 patients had tears of the medial semilunar cartilages in both knees, and 1 patient had tears of both medial and lateral cartilages of the same knee. There were 68 (21.2 per cent) cases in which arthrotomy was performed without definite demonstration of a tear in the meniscus. In many of these cases it was noted that fibrillated cartilages, loose cartilages or hypertrophied fat pads were present. However, when observations such as these represent the only pathologic processes noted, we are likely to look on such diagnoses with suspicion. We feel that the pathologic processes noted in the majority of such cases do not account for the symptoms. Of the 68 cases in which arthrotomy was performed and in which no definite tear was demonstrated, a cyst of the lateral cartilage was found in 4 and a cyst of the medial cartilage was found in 1. A discoid lateral cartilage was found in 2 cases; in 2 other cases the cartilage was thought to be congenitally abnormal and approaching the discoid type. There was a tear of the anterior cruciate ligament in 2 of these cases and of the plica alaris in 1; in all 3 of these the locking or catching which the patients described was thought to result from

TABLE 2.—*Operation, Patients, Type of Injury: Lesions of the Semilunar Cartilage (Series 2), 1934 Through 1944*

	Semilunar Cartilage					
	Medial or Lateral		Medial Only		Lateral Only	
Operation, Patients, Lesions	Number	Percentage	Number	Percentage	Number	Percentage
Arthrotomy.....	321	....	265	....	56	....
Patients.....	318	....	268	....	56	....
Total tears.....	253	78.8	214	80.8	39	69.6
Bucket handle.....	122	48.2	109	50.9	13	33.3
Anterior one third....	40	15.8	32	15.0	8	20.5
Medial one third.....	16	6.3	15	7.0	1	2.6
Posterior one third...	44	17.4	36	16.8	8	20.5
Multiple.....	5	2.0	3	1.4	2	5.1
Unclassified.....	26	10.3	19	8.9	7	17.9
Associated demonstrable injury, ligaments.....	12	4.8				
Associated demonstrable injury, patella.....	8	3.2				

the laxness of the joint. In the 253 instances in which definite tears of a cartilage were demonstrated at the time of operation, definite injury to ligaments was visible in 12 (4.8 per cent) and injuries to a patella were visible in 8 (3.2 per cent). More will be said about these observations later in this paper.

23. McMurray, T. P.: The Semilunar Cartilages, Brit. J. Surg. **29**: 407-414 (April) 1942.

24. Apley, A. G.: The Diagnosis of Meniscus Injuries: Some New Clinical Methods, J. Bone & Joint Surg. **29**: 78-84 (Jan.) 1947.

25. Morison, R.: Injuries to the Semilunar Cartilages of the Knee-Joint, Clin. J. **42**: 1-7, 1913.

V 13 1947

In the 321 cases in which arthrotomy was performed in series 2, follow-up reports were available in 284 (88.5 per cent). The time interval after operation was a minimum of six months, but in most cases it was longer. If the patient said that he had a normal knee which allowed him to carry on his usual activities without pain, swelling, stiffness, locking or instability, his condition was classified as being "excellent." If the patient felt that his knee was better than before surgical treatment, but still had pain, swelling or stiffness which were not so severe as seriously to limit his occupational activities, his condition was classified as "improved." If the patient felt that the knee was no better, or was worse than before surgical treatment, his result was listed as "not improved." In table 3 are shown the over-all results obtained in series 2, and in table 4 the results between the two series are compared. It can be readily seen that the results in the two series were closely parallel.

TABLE 3.—*Results of Arthrotomy for Tears of Semilunar Cartilages (Series 2)*

Operations, Patients, Results	Semilunar Cartilage					
	Medial or Lateral		Medial Only		Lateral Only	
	Number	Percentage	Number	Percentage	Number	Percentage
Arthrotomy, total.....	321	....	265	....	56	....
Patients, total.....	318	....	262	....	56	....
Known results, total....	284	88.5	235	88.7	49	87.5
Excellent.....	220	77.5	187	79.6	33	67.3
Improved.....	47	16.5	35	14.9	12	24.5
Not improved.....	17	6.0	13	5.5	4	8.2

Normal functioning knees were obtained by 77.3 per cent of our traced patients after surgical treatment (table 4). The thought naturally arises as to why the other 22.7 per cent of patients did not likewise obtain good results. As we have already pointed out, there were 68 cases in which arthrotomy was performed in series 2 in which no meniscal tear was present, although a fair number of the joints surgically explored did have other pathologic processes which were definite. In this group in which arthrotomy was carried out sixty-eight times, only 34 patients (50 per cent) were cured by the surgical treatment. Among the cases in which arthrotomy was performed two hundred and fifty-three times, and in which definite tears of cartilage were seen, an associated tear of one of the cruciate ligaments was noted at operation in 10 cases and a tear of the internal collateral ligament in 2 cases. In these 12 cases only 6 (50 per cent) of the patients obtained complete relief. In another 8 cases there was an associated injury of the patella in the form of chondromalacia or osteochondritis dissecans of the patella. It is probable that these two conditions are only variables of the same pathologic process. At any rate, both probably are the results, in most instances, of direct trauma. Of these 8 patients who had an associated injury of the patella only 2 (25 per cent) obtained a good result. Three of the 17 patients of the entire series whose condition was not improved were from this group of 8. Soto-Hall [26] found 12 cases (18.5 per cent) of traumatic degeneration of the articular cartilage of the patella in 65 cases in which arthrotomy was performed in a military hospital for chronic conditions of the knee. Cave and associates [27] found the same condition in 9 cases (7 per cent) of 124 in which arthrotomy of the knee was performed consecutively in another military hospital. In our cases, the associated lesions of the patella at the time were thought to be incidental, but it is open to question whether they were not actually as important as, if not more important than, the injuries to the cartilages. The same probably is true in respect to the associated injuries to ligaments.

We have also learned that some of our patients who were not satisfied with the results of surgical treatment reported that although their condition was improved they were not freed of all difficulty with the knee. Some of them, on close questioning and at examination, said that locking of the knee joint was relieved but that the weakness was not helped. Many of these patients had torn anterior cruciate ligaments that allowed a slipping forward of the tibia. We did not recognize this before operation and did not tell the patient that our operation would relieve only the locking. In these cases the weak anterior crucial ligament was not weakened sufficiently to warrant performance of any of the recognized operations for instability of the knee. Perhaps not until recent years has the importance of a strong quadriceps mechanism as means of relieving some of the instability of which patients complain been stressed strongly enough.

Had we been especially vigilant to detect these conditions in all cases, it is probable that more would have been noted. The question arises, therefore, whether, instead of the routine 2 inch (5.08 cm.) incision through which most surgeons remove the semilunar cartilage, it would not be wiser to use a longer incision and thereby to gain wider exposure of the joint, so that the ligaments and undersurface of the patella could be inspected in all instances. We believe that the explanation for many of the 22.7 per cent of patients in both series 1 and series 2 who were not cured (table 4) lies in a consideration of the factors that we have just mentioned and not in whether a part or all of the cartilage was removed.

TABLE 4.—*Results of Arthrotomy for Tears of Semilunar Cartilages (Series 1 and 2)*

Series	Total Patients Traced		Results					
			Excellent		Improved		Not Improved	
	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage
1	320	94.9	247	77.2	46	14.4	27	8.4
2	284	89.3	220	77.5	47	16.6	17	6.0
Total	604	92.2	467	77.3	93	15.4	44	7.3

It has been the practice of most of the orthopedic surgeons at the Mayo Clinic to remove only that portion of the meniscus which was torn; this has been especially true in the case of bucket handle tears. In the majority of bucket handle tears only that portion of the cartilage which could be excised through the anterior incision has been removed. If, however, a tear

26. Soto-Hall, R.: Traumatic Degeneration of the Articular Cartilage of the Patella, J. Bone & Joint Surg. **27**: 426-431 (July) 1945.

27. Cave, E. F.; Rowe, C. R., and Yee, L. B. K.: Chondromalacia of the Patella, Surg., Gynec. & Obst. **81**: 446-450 (Oct.) 1945.

of the posterior third of the meniscus is suspected and if no tear is visualized through the anterior incision but the history is strongly indicative of a torn cartilage, then probably the entire cartilage should be removed. We feel that this procedure can be accomplished more easily and safely by the use of a posteromedial or posterolateral incision to remove the posterior portion of the meniscus.

Although most British and many American writers now advocate that the entire cartilage including its peripheral attachment be excised in all instances, we feel that such a procedure probably makes little difference in the results. We do not advise routine removal of the entire meniscus. In our cases in series 2 in which there was a definite tear of the internal meniscus, the entire cartilage was removed in 22 per cent of the cases. The torn portion and in many instances only the anterior two thirds or four fifths of this portion were removed in 78 per cent of the cases. The good results (77.3 per cent) in those cases in which the entire cartilage was removed were the same as for the series as a whole.

The only postoperative infection of consequence occurred in a patient whose entire semilunar cartilage was removed; ankylosis of the knee ultimately resulted in this case. It is generally acknowledged by surgeons of large experience that the incidence of infection of wounds increases in direct proportion to (1) the length of time the wound is open, (2) the length of time the tissues are exposed to the air and (3) the trauma incident to the operation. When the entire meniscus is removed the operating time generally is prolonged and considerable trauma is inflicted on the joint. Moreover, hemorrhage into the joint is definitely increased and as a result of this alone the convalescent time is likely to be increased. In view of these facts and our results, we feel that in the majority of cases the surgeon is not justified in making a difficult and prolonged procedure out of one which can be carried out easily within a few minutes with a minimum of trauma, hemorrhage and postoperative reaction. If the surgeon feels that entire removal of the cartilage is indicated, we believe this can be accomplished by the average surgeon with the least trauma through two incisions. There may be a few skilled surgeons who can, with special instruments, satisfactorily remove the entire cartilage through one incision, but we are sure that this does not apply to the average surgeon who performs operations on the knee joint.

SUMMARY AND CONCLUSIONS

The cases in which arthrotomy of the knee has been performed at the Mayo Clinic for derangements of meniscuses through 1944 have been reviewed. This procedure has been carried out six hundred and sixty-four times for 655 patients who had the condition in question.

The diagnosis of meniscal injuries or abnormalities can be established best by the careful taking of a history in which locking of the knee joint followed by pain and swelling is elicited. This triad was present in 70 per cent of our cases.

In many cases of injury to the meniscuses there are associated injuries of the ligaments or of the articulating surface of the patella. In this group of patients the results of surgical treatment are likely to be considerably worse than among those patients whose injury is confined to the semilunar cartilages.

The results of excision of the torn portion of the cartilage and the results of excision of the entire cartilage were essentially the same in the more recent of the two series of cases concerned herein.

ABSTRACT OF DISCUSSION

Dr. D. M. Bosworth, New York: We have had experience with the grinding test of Apley at Halloran General Hospital; we do not feel that this test is of great aid. It does not always show a torn cartilage when present, and sometimes gives specific findings when other pathologic changes are present. One must be extremely careful in accepting a diagnosis of pathologic changes in the knee due to loose cartilages and fat pads. We have on occasion found in knees without torn cartilages several causes of disability. In women, and even in men, we have found an occasional subluxation of the patella, giving the triad of locking, pain and swelling. With a good many patients, I never was satisfied that I knew the pathologic changes causing the triad. Subfemoral chondritis with a loose flap will give the same triad by history. It is important to remove all of the torn meniscus. The patients with partial removal may have the same percentage of good results, but those patients with all of the torn meniscus removed have better results. Some of them will be entirely cured by removal of the loose bucket handle, but we have found that there are double bucket handle fractures and triple bucket handle fractures, and one may deal with the outside loose part and leave behind tears in the back of the cartilage which one cannot see. The authors have mentioned that one cannot see the torn cartilage, even when one has a bucket handle fracture placed well back. For that reason, it would be wise to remove the entire cartilage. Tears begin way back and may extend back to the attachment of the cartilage to the tibial spine. I have operated on the knee in a considerable series of cases, but have had to aspirate for postoperative hemorrhage on only two occasions.

Dr. E. F. Cave, Boston: The authors stress the importance of making an accurate preoperative diagnosis to localize the lesion and emphasize the necessity of taking a careful history as to the mechanism of injury and the presence of pain, locking and swelling, which occurred in 70 per cent of their cases. Their ability to diagnose accurately the presence of meniscal tears increased by 15 per cent in the second series as compared with the first. Even so, there were approximately 60 cases in the second series of 265 in which no tear of a meniscus was demonstrated at operation, and, as the authors note, the finding of a fibrillated cartilage, hypermobile cartilage or hypertrophied fat pad to account for symptoms was regarded with some skepticism. We believe that, while the history is important, a detailed and systematic physical examination of the knee is the greatest single factor in localizing the region of injury in internal derangement of the knee. Both lower extremities must be stripped and the normal knee always examined in comparison, as must also the hip and foot on the affected side. Careful palpation of the joint lines and the articular surface of the patella in various positions often will reveal the diagnosis. Many injuries in the posterior third of the semilunar cartilages can be diagnosed by simply palpating the posterior joint line. Too often the presence of an injured cruciate ligament is missed by failure to make a complete test of the stability of the knee in various positions. Surgical treatment should cure close to 100 per cent of patients with an uncomplicated injury of the meniscus. Those who are not completely relieved usually have an associated ligamentous injury or traumatic change in the articular cartilage. Of 65 patients with uncomplicated injuries of the meniscus in a series of one hundred and twenty-four arthrotomies done in an

V 13
1947

army general hospital overseas, 85 per cent returned to and remained at full military duty. Certainly this can be bettered in civil practice, but only if the lesion is accurately localized, a careful nontraumatic operation is done and normal muscular strength is restored postoperatively. The choice of incision for removal of cartilage must be determined by first localizing the lesion. If we believe that we are dealing with an uncomplicated meniscal tear, we employ the "combined" incision described in 1935. One cutaneous and two capsular incisions are used, and on the inner aspect of the knee the branches of the internal saphenous nerve are carefully preserved. If there is doubt as to the exact nature of the lesion and still operation is indicated because of pain or locking, we employ a small parapatellar incision which can be enlarged inferiorly or superiorly if necessary. We always remove the entire cartilage with the greatest possible care and with proper instruments.

DR. PAUL R. LIPSCOMB, Rochester, Minn.: I agree with Dr. Cave that not only the history but also the physical examination is important in the diagnosis of lesions of the meniscuses, but what I wished to stress was the fact that we cannot depend on any one test. As one reads some of the articles about the various tests which have been advocated, he is likely to gain the impression that all the surgeon has to do is to obtain a history of the injury, carry out the "specific" tests and make the diagnosis. Unfortunately, it is not that simple. Of the 68 cases in series 2 in which no tear of a meniscus was present, there was a pathologic process in many, consisting of hypertrophied fat pads, fibrillated cartilages and similar changes. As Dr. Bosworth emphasized, we looked on these latter diagnoses with skepticism. The question of the removal of the entire cartilage is a pertinent one. In the case of the surgeon who is doing many operations on the cartilage, I doubt that much more trauma is inflicted on the joint when the entire cartilage is removed than when only part of it is removed. However, many surgeons who have to remove cartilages do not have the opportunity to open the knee joint very often. We believe that the surgeon who can open the knee through an anterior incision probably can visualize 75 per cent of the tears. There is still a 25 per cent chance that there may be a tear in the posterior part which cannot be visualized through such an incision. Considerable trauma can be inflicted on the knee joint by the inexperienced surgeon who tries to remove the entire meniscus. If I had a bucket handle tear, I would rather take the chance involved in removal of the anterior two thirds of the torn portion which could be reached through the anterior incision, rather than to have some surgeon who is not especially skilled try to remove the entire cartilage. We believe that if one is to remove the entire cartilage, at least two capsular incisions, as advocated by Dr. Cave, if not two cutaneous incisions, are desirable.

Daniel Drake.—Born in New Jersey, he moved with his family to Kentucky at an early age. In 1800 he went to Cincinnati, where he was apprenticed to Dr. William Goforth for four years. Drake completed his medical education at the University of Pennsylvania in 1816. Thenceforth, he embarked on a career of vigorous activity in medicine, education and literature. In 1814 he helped to organize the Lancastrian Seminary in Cincinnati. Later this institution became the Cincinnati College, and Drake organized the medical faculty. He was also a member of the medical faculty of Transylvania University at Lexington, the first medical school established in the West. He organized other medical schools, a public library and a literary society; assembled a remarkable private museum of natural science; and wrote numerous pamphlets, books and addresses. . . . Drake's most important work is his invaluable treatise on Diseases of the Interior Valley of North America. In the opinion of Otto Juettner, his biographer, "If he had done nothing more than leave his monumental work on the 'Topography, Geography, Meteorology, Climate, and Diseases of the Interior Valley of North America,' he would still rank with the greatest sons of the West."—Rosen, George, M.D., and Caspari-Rosen, Beate, M.D.: 400 Years of a Doctor's Life, New York, Schuman's, 1947.

SKIN PROBLEMS OF THE AGED (GERIATRICS)

OLIVER S. ORMSBY, M.D.
Chicago

The medical care of the aged group[1] of persons is now attracting the attention of a growing number of physicians owing to the fact that today this group comprises a much larger proportion of the total population than it did several decades ago—at that time the life span was recognized as 50 years. At this figure the proportion was not large enough to present much of a problem. With the life expectancy now given at 65 years and rapidly rising to perhaps 70 years in a short time, the medical care of this group becomes of major importance.

There is no specific age at which the so-called senile changes develop, and there is no specific rule guiding the changes in the various organs and tissues of the body. They may begin any time after 30 years of age.

As age advances, the bones become more brittle from increase in inorganic salts, the cartilage more rigid and calcareous, the crystalline lens gradually loses its elasticity, the muscles and nervous system lose their vigor, the hair loses its pigment, the number of nerve cells becomes smaller, and the skin becomes thin and less elastic and may assume a yellowish or grayish tinge. The subcutaneous fat is lessened, and scaling and wrinkling develop in variable degree. I have frequently seen definite atrophic (senile) change in the skin at the age of 50 and, on the other hand, none at all at 70. Hyperpigmentation is common—in women increased growth of hair on the face and body occurs, and in men a more or less complete loss of hair on the scalp is seen. The hair of the ears and nostrils often becomes coarse but probably not increased in amount.

The histologic change includes basophilic degeneration of the collagen and elastin. Identical changes are seen in xeroderma pigmentosum and in roentgen ray and radium changes.

While the senile skin is subject to many diseases seen earlier, certain ones occur predominantly at this time. They include: verruca senilis (seborrheic keratosis, verruca seborrheica); keratosis senilis (senile keratoma); angioma (senile ectasia); atrophy (atrophia senilis); pruritus senilis; alopecia (senilis): canities (senile); epithelioma and carcinoma, and exfoliative dermatitis.

SENILE ECTASES

These are bright red or purplish angioma-like lesions occurring on the trunk and upper part of the chest. They are hemp seed-sized, slightly elevated ectases or varices. The lesions are composed of tufts of dilated capillaries and usually occur past middle age. Treatment is indicated for cosmetic purposes only. They are readily removed by electrolysis or with carbon dioxide refrigeration.

Read in the General Scientific Meetings at the Ninety-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., June 10, 1947.

1. Thewlis, M. W.: The Care of the Aged (Geriatrics), ed. 5, St. Louis, C. V. Mosby Company, 1946, pp. 75, 76 and 397-415. Weidman, F. D.: Aging of the Skin, in Cowdry, E. V.: Treatise on Problems of Aging, Baltimore, Williams & Wilkins Company, 1939, pp. 339-360. Evans, R.; Cowdry, E. V., and Nielson, P. E.: Aging of the Skin, Anat. Rec. **86**: 545-563, 1943.

ATROPHIA SENILIS (SENILE ATROPHY)[2]

The skin assumes a dull yellowish or grayish[2] hue and is seamed with furrows and wrinkles, is dry and inelastic and may be slightly scaly, and loss of subcutaneous fat causes the skin to hang in folds or to be readily lifted from subcutaneous structures. The hairs in the affected areas may fall or revert to the lanugo type. Accumulations of verruciform sebum and epidermis varying in size from pea to finger nail are seen on the face and elsewhere. These may be soft and readily removable or adherent and scaly. There may be small pendulous shrivelled pouches representing fibromas that have been absorbed. Telangiectatic lesions often are present.

Histology.—There may be a simple atrophy of all of the layers of the skin in the cutis together with a varying degree of atrophy of the dermal appendages. When the skin is exposed to light, degenerative changes occur in the collagen and elastin. The cells of the prickle layer are reduced and there are accumulations of pigment in the basal layer.[3] The epidermodermal junction is flattened owing to the absence of elastic tissue, which is also diminished or degenerated in the subpapillary layer. A similar degeneration was described by Weidman under the title "elastosis senilis."

Treatment.—Senile atrophy may be postponed by improving the nutrition of the skin through massage, electricity, oil inunctions, bran or salt baths; cod liver oil and vitamins containing this oil are useful.

PRURITUS SENILIS

This is a form of essential pruritus occurring in the aged. The itching is often generalized but with the trunk chiefly attacked. It is thought to be due to degenerative and atrophic changes in the skin and may be a serious condition. Cutaneous changes are limited to some atrophy and a secondary traumatic dermatitis. This is induced by excoriations with, at times, mild crusting and some pigmentation. These cases have to be distinguished from the pruritus that occurs in the various lymphoblastomas. A blood examination will usually make the distinction.

Treatment.—Daily massage with an oxycholesterol-petrolatum ointment base ("aquaphor") or wool fat is valuable. The following ointment is useful: acid salicylic, and phenyl salicylate, 1.33 Gm. of each; methyl salicylate, 2 Gm.; zinc oxide, 8 Gm.; wool fat, 16 Gm., and petrolatum, to make 60 Gm. Wool should not be worn next to the skin.

ALOPECIA SENILIS

This form of alopecia is usually entirely symmetric and may be extensive. It is attributed to general atrophic changes which are often marked in the scalp. There is often much loss of fat which decreases the flexibility of the scalp. It practically always occurs in the male sex. This same type occurs often in vigorous men who show no other signs of senility. According to Rattner, this type (presenile) occurring in earlier life is frequently a sign of virility. This type of alopecia is remarkable for its symmetry and often lends dignity to its victim. Pityriasis steatoides and other local conditions of the scalp in early life may predispose to this form of alopecia.

Treatment.—No treatment is of value.

CANITIES SENILIS

This is one of the commonest conditions that occur in the elderly. The decoloration may be gradual, which is the rule, or may occur fairly rapidly. The color varies from gray, when a number of pigmented hairs are present, to silvery white when all pigment has disappeared. Premature graying of the hair is not uncommon. One of my patients had iron gray hair at the age of 5. In rare instances in senile canities the color of the hair has been restored. The rule is: once gray or white, always gray or white.

KERATOSIS SENILIS (KERATOMA SENILIS)[4]

These lesions are important, as they are real precancerous lesions. They occur in persons past middle life, usually after the age of 60, chiefly on exposed surfaces. Men are affected more commonly than women, and exposure to the sun and wind are predisposing factors. Areas affected include the forehead, temple, upper parts of the cheeks, the nose, the sides of the neck, the ears and the dorsal surfaces of the hands. The lesions are from the size of a pinhead to that of a dime, moderately elevated, slightly greasy or more often dry and hard, forming adherent yellowish brown or black crusts which, when forcibly removed, present numerous horny spines on the under surface which have projected into the dilated mouths of the underlying follicles. The skin beneath is uneven, moist and red, bleeds easily and is sometimes superficially ulcerated. They commonly show no inflammatory symptoms unless they are undergoing malignant transformation into true epitheliomas. The course is variable. They may remain unchanged for years. Some are gradually transformed into epitheliomatous ulcers which gradually enlarge, while others become more elevated and wartlike and present the clinical characteristics of the papillomatous epithelioma. These lesions are often found in association with other changes characteristic of the senile skin such as atrophy, hyperpigmentations and unusual dryness with or without scaling and with more or less persistent seborrheic patches.

Histology.—In senile keratoses there occurs a marked hyperkeratosis consisting of closely packed horny lamellas, an irregular acanthosis, the basal layer being poorly defined and its cells containing a variable amount of pigment. There is a variable mitosis in the epidermal cells, and dyskeratotic phenomena are seen. In the upper part of the cutis there occurs an inflammatory reaction of varying degree of intensity, indicated by vascular dilatation and a cellular infiltration consisting chiefly of lymphocytes, together with a few plasma cells and connective tissue cells. There also occurs some basophilic degeneration of the cutis.

THE SENILE FLAT WART (VERRUCA SEBORRHEICA)[5]

Seborrheic keratoses resemble senile keratoma, but their clinical and histologic distinction is usually readily made. The lesions of verruca seborrheica occur, usually, around and past middle life and are found chiefly

2. Ormsby, O. S., and Montgomery, H.: Diseases of the Skin, ed. 6, Philadelphia, Lea & Febiger, 1943, p. 585.
3. MacLeod, J. M. H., and Muende, I.: Pathology of the Skin, ed. 2, New York, Paul B. Hoeber, Inc., 1940, p. 79.
4. Ormsby, O. S., Diseases of the Skin, ed. 5, Philadelphia, Lea & Febiger, 1937, p. 488. Ormsby, O. S.: Precancerous Dermatoses, New England J. Med. **224**:788, 1941.
5. Ormsby and Montgomery,[2] p. 674.

V 13 1947

on the back over the shoulders, on the chest, on the abdomen and at the waistline, and occasionally on the face and neck. They are flat, moderately elevated, oval or round, pea to small coin in size, gray-yellow, brown or black and present a soft granular surface. The friable, greasy crust is easily removed, revealing a red granular or slightly papillomatous base. They may be accompanied by itching, which at times may be severe. Unlike senile keratoses, these lesions rarely undergo malignant transformation. Occasionally their surface is smooth when they resemble nonhairy pigmented moles. This type has been designated "nevoid keratosis." In addition to the typical verruca seborrheica described, there occurs a hyperkeratotic seborrheic keratosis in the form of scaling pigmented patches which closely resemble senile keratoses. In these the scales are waxy and the skin is thickened, sometimes slightly verrucous; their color is yellowish brown to brownish black, and they are found on the face, scalp and upper portion of the trunk in elderly persons. These not infrequently undergo malignant transformation.

Histology.—The characteristic changes consist of hyperkeratosis, acanthosis, horny cysts and hyperpigmentation. The epithelial hyperplasia occurs in the form of a loose or solid network of epithelial cells. Islands of connective tissue are enclosed in this network owing to the irregular acanthotic prolongation of the rete. Numerous horny cysts are present and are characteristic of the disease. Hyperpigmentation is present, the melanin granules being scattered throughout the epidermis as well as being present in the basal layer of epithelial cells. They are also found in the cutis. No dyskeratotic changes are seen in the epithelial cells. The cutis may show a moderate inflammatory reaction.

COMPARISON OF SEBORRHEIC AND SENILE KERATOSES

Histologic Comparison: Keratoma senilis is characterized by hyperkeratosis, irregular acanthosis, with dyskeratotic phenomena and secondary inflammatory reaction. Verruca senilis (verruca seborrheica) is characterized by hyperkeratosis, irregular acanthosis with the formation of an epithelial network, absence of dyskeratosis, a mild inflammatory reaction and usually increased pigmentation. The chief points of distinction clinically are the location. Senile keratoses occur chiefly in the forehead, upper portion of the sides of the face, on the ears, side of the neck and on the dorsal surfaces of the hands. The lesions are hard, firmly adherent crusts with horny spines on the under surface which fit into the open mouths of the follicles beneath. The surface beneath the crust is moist, red and bleeds easily and is sometimes superficially ulcerated. The seborrheic keratoses (verruca seborrheica) select the trunk, both anteriorly and posteriorly, the abdomen and less often the face and neck. These lesions are soft and granular and easily removed, revealing a soft granular or slightly papillomatous base.

Treatment of Senile Keratoses: The lesions may be removed by softening with a keratolytic ointment (salicylic acid) for a few days; the surface is then curetted, after which refrigeration with solid carbon dioxide is satisfactory, or trichloroacetic acid may be used in place of the carbon dioxide. Diathermy or electrocoagulation is also recommended. If malignant change is already progressing, one or the other of the last-named methods should be used, or surgical excision or chemosurgical procedure should be employed.

Treatment of Seborrheic Keratoses (Sebaceous Warts: Their removal is necessary only for cosmetic purposes as a rule. When numerous and large and limited to the trunk, complete removal is not necessary. They may be reduced in size and rendered less conspicuous by the use of an ointment containing salicylic acid and sulfur in the strength of 3 and 5 per cent respectively. If complete removal is desired, they may be curetted and frozen with solid carbon dioxide, or trichloroacetic acid may be applied. Roentgen rays are also efficient.

CANCER

Cancer in some of its varied forms accounts for one third of the deaths in the aged. In the year 1942, of a total of 163,400 deaths due to cancer, 10,967 were from cancer in the skin or mouth and on the lip and tongue. Senile changes in the skin leading to cancer include hyaline degeneration in the corium, sclerosis of the vessels and atrophy of the rete, followed by keratosis, scaling, papillary growths and acanthosis.

Carcinoma of the lip is seen most often in men between the ages of 50 and 70 years and often develops on a hyperkeratosis and from a fissure. Trauma from a pipe and often external irritants are contributing factors in its production. All the different clinical and histologic varieties of cancer occur in the aged as well as younger persons. The degree of malignancy is apparently reduced in the aged. That is, a fatal termination occurs more quickly in the younger group.

Squamous Cell Epitheliomas.—These are often secondary lesions on preexisting conditions such as senile keratosis and senile cutaneous changes. They also develop occasionally in sequels to previously existing diseases such as syphilis and lupus. Practically all epitheliomas of the mucous membranes of the mouth, nasopharynx and genitalia are squamous cell epitheliomas, are capable of metastasis and are highly malignant. The lower lip is a favorite site, and 95 per cent of these occur in men. There are two clinical types found on the lip, the superficial papillary and the deep infiltrating ulcerating type. After the lip, the common sites for squamous cell epitheliomas are the cheek, ear, nose, upper extremities and forehead. Usually there is a crateriform ulcer with a wide, pearly border. This is more infiltrated and wider than that seen in the basal cell variety. In addition, verrucous, papillomatous, or fungoid as well as extensive cauliflower-like growths are seen. These lesions sometimes follow trauma such as a horse bite.

Histology: Broder divides squamous cell epithelioma into four grades, according to the degree and differentiation of the tumor cells, tendencies at pearl formation, number of metastases and evidence of invasion of deeper structures.

Treatment: Complete removal of these lesions by surgical excision or chemosurgery is recommended. In only a few selected cases radium or roentgen rays may be used.

Basal Cell Epithelioma.—This lesion is illustrated by the "rodent ulcer." It usually begins as a pearly nodule which ulcerates and becomes crusted. These crusts fall spontaneously and the ulcer enlarges. Its margins are elevated (rolled edge) and often telangiectatic. The base of the ulcer is nodular. The ulcer may be superficial and cicatricial or deep and locally destructive. It enlarges slowly but often destroys large areas of the face and nose; it does not metastasize. At times the lesions remain nodular without ulceration, and at times

a yellowish plaque is formed (morphea-like epithelioma). Rarely what appears to be a basal cell epithelioma metastasizes, in which case it has become a mixed basal, squamous cell epithelioma. I have seen a number of these. Even when metastatic involvement occurs, such a lesion remains comparatively benign.

Histology: Origin of these tumors can usually be traced to the basal layer of the epidermis. The tumor cells are larger than normal epithelial cells and a variable number of mitotic figures are seen. In some cases a lattice-like arrangement with narrow interlacing strands occurs, and at other times there may be mucoid or myxomatous changes associated with the growth. The dark staining of the cells, their uniformity, the absence of prickle cells and the lack of pearl formation are the characteristic histologic findings.

Treatment: Basal cell epithelioma usually responds well to radium or roentgen rays. Surgical or other methods may be employed if necessary.

KRAUROSIS VULVAE

This affection occurs usually in women of advanced age or at the menopause or in younger women in whom this condition has been produced through surgical removal of the uterus or ovaries. It is esesntially a sclerosing atrophy of the mucocutaneous structures of the vulva. It is characterized at its height by the complete or almost complete disappearance of the labia minora, the frenulum and the clitoris, with flattening and reduction in the volume of the labia majora, together with rigidity of the vulvar tissues and atresia of the vaginal orifice. The color of the retracted tissues may be whitish, yellowish, reddish or bluish. A characteristic glistening appearance, as though varnished, may be present. The disease is usually preceded by intense itching, which may persist, though in some late cases there is loss of cutaneous sensibility. Taussig stated that 75 per cent of the cases occur at the menopause and that the balance have some disturbance of ovarian function. Leukoplakia may occur as a complication, in which case malignant growth often follows. This condition is to be distinguished from simple leukoplakia of this region, which is similar to that seen in the mouth, and from pruritus with lichenification (neurodermatitis), which produces a whitish thickening of the vulva. When the last condition is present, the usual picture of neurodermatitis is apt to be seen extending over the pubes and down over the inner aspects of the thighs. The treatment of the condition is surgical. Taussig expressed the belief that the incidence of cancer can be reduced 50 per cent by complete vulvectomy for leukoplakic vulvitis.

Histology.—Montgomery gave the following as the characteristic histologic features: hyperkeratosis; hypertrophy of the stratum granulosum; atrophy of the rete mucosum; liquefaction necrosis of the basal cell layer; edema and homogeneization of the connective tissue fibers; cellular infiltration, largely lymphocytic, of the midcutis, and subsequent atrophy of the cutis and subcutis.

LEUKOPLAKIA

This disease as seen in the mouth occurs as whitened areas of varying size and diverse outline. There may be one or several patches situated on the surface of the tongue, beneath the tongue, on the buccal mucosa, particularly behind the commissures and over the area opposite the molars, on the gums, lips and the hard palate. At times the condition occurs profusely over a large portion of the buccal cavity. The patches are white or grayish white, thickened in varying degrees and often rough. Erosions occur in patches when the superficial covering is shed. At times the patch becomes verrucous, fissured and vegetating. It is not known in what proportion malignancy develops. The condition occurs in both syphilitic and nonsyphilitic persons. The chief disease from which it is to be distinguished is lichen planus. In the latter, the white areas are linear and striate on the buccal mucosa and consist of white papules on the tongue. The presence of cutaneous lesions of lichen planus is a valuable diagnostic point. Occasionally a syphilitic interstitial glossitis with atrophy is associated with leukoplakia. The use of tobacco both by smoking and chewing is often an etiologic factor.

Treatment.—Cessation of the use of local irritants is first indicated, the first one being tobacco. Hot and cold substances, condiments and vinegar are to be avoided. Electrodesiccation, the electric cautery or radium are the most efficient methods of direct removal. In extensive quiescent cases, palliative treatment is recommended. Partial removal is likely to induce malignant change.

XERODERMA PIGMENTOSUM

Xeroderma pigmentosum is a rare disease which begins in childhood and is characterized by hyperpigmentation, atrophic areas, telangiectases and warty and malignant growths. It is described here because it is identical with changes occurring in the senile skin. The eruption occurs largely on exposed surfaces, and these include the face, neck, upper part of the chest and the hands and forearms. Other areas are occasionally invaded. Sunburn has initiated the process in several instances. It is distinctly a family disease, being present in 2 or more members as a rule. The earliest symptom may be erythema or dermatitis. Following this, or independent of it, freckle-like lesions develop. These become numerous and are of variable size and present different shades of yellow and brown. Interspersed between these lesions variously sized whitish atrophic areas or cicatriciform patches develop. Telangiectases and small angiomas are common. Flat or convex warty growths also develop and these resemble senile keratoses. They are pea sized or larger and are scattered among the pigmented and telangiectatic lesions. At a later date malignant growths appear and various forms occur, the chief of which is carcinoma. This often causes ulceration on the face. Keratitis is common, and nodules and opacities occur in the cornea, causing obstruction of vision. The progress of the disease is usually slow, though death from marasmus may occur within a few months. Malignant transformation usually occurs after many years and results in a fatal termination. A striking thing about the disease is its resemblance to the changes seen in the senile skin. Aside from the fact that it is a family disease and apparently is the result of the action of the sun's rays on a peculiarly sensitive skin, nothing is known of its cause.

Pathology.—All the changes seen microscopically are closely simulated in sailors' skin and in chronic dermatitis due to roentgen rays. The malignant growths most often seen are basal cell epitheliomas. In addition, melanoepitheliomas, trichoepitheliomas, round, spindle and giant cell sarcomas, endotheliomas, peri-

V 1
194

epitheliomas and angiosarcomas have been described, as well as fibromas and angiomas.

The lesions are found usually on the forehead, nose and inner aspects of the cheeks; rarely on the scalp and on the trunk, and never permanently on the mucous membranes.

DERMATITIS EXFOLIATIVA [6]

This disease is often serious, as at least 50 per cent of its victims succumb. While not common, quite a proportion occurs in the old age group. Some of these cases belong to the lymphoblastoma group. These all terminate fatally. Some appear to be the terminal stage of a chronic generalized eczema. In some cases the disease develops on other cutaneous diseases. In many cases there is no demonstrable etiologic factor. Quinine in large dosage is valuable in treatment. Some patients do well with a dry treatment, inert powders being used locally. Others respond better to soothing emollient applications. The cases due to heavy metal respond to BAL (2, 3-dimercaptopropanol) and injections of sodium and calcium thiosulfate.

The course of other forms of dermatitis in the aged is altered by senile changes enumerated earlier in this paper. In eczema and contact and atopic dermatitis, the treatment consists in the use of local applications and internal treatment, commonly employed for these conditions.

A nutritional eczema in the aged in which the essential proteins were reduced was recently described by W. H. Guy and associates.[7] The eczema was due to poor mastication and an unbalanced diet, high in carbohydrates and low in proteins. The dermatitis was located chiefly below the knees and was associated with edema. The authors recommended proper mastication, a high protein diet, the use of protein hydrolysates and vitamins, yeast and liver, dilute hydrochloric acid and correction of the associated anemia and proper local treatment.

The general care of the aging skin depends on the type and extent of changes present. The hyperpigmentations cannot be changed. For the dry keratotic skin the use of vitamin A is helpful. In some vitamin B complex improves the nutrition. As a rule, radical changes in the diet should not be made in the aged. Thewlis [8] stated that proteins, salt and water are the sheet anchor in the diet of the elderly. As there is often a deficiency in calcium and vitamin C, he recommended a pint (470 cc.) of milk and a glass of orange or grapefruit juice daily, in addition to the regular diet. A general bath may be taken two or three times weekly. An application of glycerine and olive oil in the proportion of 25 per cent and 75 per cent is useful following the bath. Wool should not be worn next to the skin. When a definite glandular deficiency can be detected, this can be helped by appropriate treatment.

SUMMARY

The high proportion of the old age group makes this an important medical problem. A group of diseases found especially in the aged has been described. These included the highly important cancer group, which is common at this age, and also some precancerous conditions. Through the measures outlined, the skin of the aged can be made more comfortable and less of a menace to life.

6. Epstein, S.: Dermatitis in the Aged, Geriatrics **1**: 369, 1946.

7. Guy, W. H.; Jacobs, F. M., and Guy, W. B.: Geriatric Nutritional Eczema, read at the Sixty-Seventh Annual Meeting of the American Dermatological Association, Murray Bay, Canada, June 3, 1947.

8. Thewlis,[1] vol. 1, p. 352.

Clinical Notes, Suggestions and New Instruments

USE OF BAL IN LEAD POISONING

A Preliminary Report on One Case

JAMES G. TELFER, M.D.
Surgeon, United States Public Health Service
San Francisco

Lead poisoning remains today a disease of seriously high incidence and severity in spite of newer knowledge of means, and the greater application of methods, of prevention. The literature of the study of this disease is voluminous, and yet neither the methods of diagnosis nor those of treatment are entirely satisfactory.

The symptoms and signs of lead poisoning are so lacking in specificity that supportive evidence is necessary for diagnosis. The history may not be dependable because of ignorance of exposure and questionable probabilities of absorption and because of the patient's eagerness for expected compensation.

Laboratory evidence of lead poisoning may not be conclusive. The anemia and leukocyte pictures are not specific. Basophilic stippling of the red blood cells is not pathognomonic. Such stippling is not constant in plumbism but usually occurs only during the acute stage, or in stages of exacerbation.[1] Since small quantities of lead are normally present in the tissues, blood and urine, delicate quantitative determinations are necessary to detect amounts greater than normal. Even these findings are not in themselves diagnostic, since some persons may show them and yet never have any symptoms or physical signs of lead intoxication. Roentgen examination is not of value in revealing pathologic deposits of lead salts in adults, as the demonstrable "lead line" is formed only before the epiphyses have united.

Authorities on the subject of plumbism seem to agree that increased circulating lead may be found at the time of the appearance of symptoms and that there is a definite correlation between the symptoms and the presence of abnormal amounts of circulating lead.

Since the output of lead in the urine tends to follow the relative level in the blood, the presence of a greater than normal amount of lead in the twenty-four hour specimen of urine is an indication of increased circulating lead. However, as the activity of the intoxication diminishes, the lead values of blood and urine may return to normal. Some of the circulating lead tends to be deposited in the tissues, particularly the bones. Here it ceases to cause immediate trouble. When it reenters the circulation there may be a relapse in the clinical course. Accordingly, treatment in the active case has been aimed at driving the lead from the circulation to its fixed state in the bones and holding it there until remission. Then procedures have been undertaken to return gradually the excess lead to the circulation so that it would be excreted, but at a rate low enough to avoid toxic concentrations in the circulation. For diagnosis in borderline cases, the procedure to return excess lead to the circulation has been believed to be of value in converting the lead to a demonstrable form.

In 1926, Aub and his co-workers [2] reported on experimental work which they interpreted to indicate that measures to develop a positive calcium balance favor the storage of lead, and measures to develop a negative calcium balance favor the

From the Medical Service, United States Marine Hospital, San Francisco.

Advice was given by J. Walter Hough, M.D., Bureau of Adult Health, Industrial Hygiene Service, State of California Department of Health, and the determinations of the lead in specimens of urine were performed by Dr. Hough and Mr. W. J. Roberts, Associate Industrial Hygiene Chemist. These determinations were carried out at the Laboratory of the Industrial Hygiene Service. Members of the staff of the United States Marine Hospital gave advice and assistance.

1. Johnstone, R. T.: Occupational Diseases, Philadelphia, W. B. Saunders Company, 1942.

2. Aub, J. C.; Fairhall, L. T.; Minot, A. S., and Reznikoff, P.: Lead Poisoning, Medical Monographs, Baltimore, Williams & Wilkins Company, 1926.

excretion of lead. Patients were given calcium salts parenterally and by mouth, a great deal of milk, and vitamin D to promote the storage of lead and calcium in the bones. After clinical remission, a low calcium intake and administration of acid-forming salts were instituted to remove the lead from storage, so that it would be gradually excreted. Borderline patients were given the latter type of therapy to develop a significant circulating level or urine level for confirmation of diagnosis. This process of "deleading" has been believed to be so effective that some authors, notably Gray and Greenfield,[3] have emphasized a danger of producing toxic effects from throwing too much lead into the circulation at once.

However, Kehoe, as quoted by Johnstone,[1] has stated that the experience and observations of himself and his co-workers have led them to believe that lead cannot be bound in stable form in any part of the body, with the possible exception of nerve tissue. Their evidence tends to show that if the lead content of the body is elevated above normal, the excretion of lead in the urine will be correspondingly elevated. They have never found any evidence that calcium and phosphorus therapy produces more than minor changes in the distribution of lead in the body and in the rate of excretion from the body. They believe that whatever benefit is achieved from calcium and phosphorus therapy is not the result of mobilization or demobilization of lead in relation to depots of deposits.

A substance which would so combine with an excess of lead in the body as to bring it into the circulation and result in its excretion, and yet hold it so that it does not cause toxic effects, would be ideal in treatment and valuable in diagnosis. The substance BAL, or British Anti-Lewisite (2,3-dimercaptopropanol), has been shown to have such a type of action in arsenic poisoning by competing for the arsenicals with the thiol groups of the tissue proteins and to produce this effect in dosage, causing no more than transient minor toxic symptoms of its own.[4] Several authors, including Davison,[5] have reported on the effectiveness of BAL in the treatment of poisoning with gold salts. Braun, Lusky and Calvery [6] have reported that they found BAL to be an effective antidote in acute poisoning caused by the administration of toxic doses of antimony, bismuth, chromium, nickel and mercury in the rabbit. These latter authors reported that BAL was ineffective in the treatment of rabbits acutely poisoned by salts of lead, thallium and selenium. "In the case of lead and selenium, the action was additive."

The following report of a trial of BAL in a patient suffering from lead poisoning is presented:

REPORT OF A CASE

The patient, R. C. A., was a white American, 40 years of age, who for many years had worked as a boatswain aboard ocean-going ships. He was particularly interested in maintenance painting. He personally mixed all the paint used in this work on board his ship and always made a special effort to get "good lead paint." He mixed the paints in a small, poorly ventilated space. He also stated that he sometimes ate without washing the paint off his hands. On admission, this man complained of pains in the lower part of the abdomen of eleven days' duration. At the onset, he had first noticed epigastric pain, weakness and nausea. Later that day he vomited undigested food, and experienced diarrhea with watery brown stools, followed by the cramps in the lower part of the abdomen. These dull cramps had continued intermittently. He had rested and gone on a "milk and fruit juice" diet for several days, and had begun to feel better. He then returned to work, including the mixing of paint. With reappearance of vomiting and diarrhea and intensification of cramps, he was sent to the hospital. Apparently he had been constipated between episodes of diarrhea. The history was negative for any medication with mercury or bismuth.

Examination of this patient on admission revealed a muscular, apathetic person showing poor general hygiene. There was a well marked "lead line," consisting of a narrow zone of tiny gray to black spots near the dental margins of the gums on both the labial and lingual surfaces. The abdomen was of medium fulness, with generalized tenderness to deep palpation and with sounds of moderate peristalsis present. No evidence of any neuropathy was found. After he was washed, it appeared that his general coloration was rather dull, or "pasty."

The patient was given intravenous infusions containing 1.0 Gm. of calcium gluconate per liter, and he improved rapidly. He continued to have occasional mild cramps in the lower part of the abdomen until the third day in the hospital.

The routine urinalysis showed a specific gravity of 1.018 and albumin (1 plus), and was otherwise normal. The red blood cell count was 3,100,000, with 10.0 Gm. of hemoglobin. The white blood cell count was 16,400, with 77 per cent neutrophils, 1 per cent eosinophils, 1 per cent basophils, 1 per cent monocytes and 20 per cent "small mononuclears." It was estimated that approximately 2 per cent of the red blood cells were stippled. The Kahn reaction was negative. The blood nonprotein nitrogen level was normal. Daily twenty-four hour specimens of urine were collected and tested for lead by the dithizone method (by which 0.150 Gm. per liter is considered the lowest figure indicating absorption of lead). From 0.010 to 0.040 mg. of lead per liter of urine was found in five specimens collected from the third through the eighth day. These values were notably low.

The patient remained in the hospital for convalescence, and from the eleventh through the thirteenth day he was given twelve intramuscular injections of BAL. Each injection consisted of 1.9 mg. of BAL, 10 per cent in oil, per kilogram of body weight. His only complaint referable directly to the BAL pertained to the pain of the injections themselves. During the two days following this course of BAL he had occasional slight abdominal cramping. From the eleventh through the seventeenth day, daily twenty-four hour specimens of urine revealed 0.33, 0.50, 0.30, 0.20, 0.26, 0.24 and 0.23 mg. of lead per liter of urine respectively. All these values are well over the minimum significant level.

On the twenty-fifth day, eleven full days after completion of the first course of BAL, a twenty-four hour specimen of urine showed 0.21 mg. of lead per liter.

On the twenty-ninth day, the patient was started on a second, heavier course of BAL. Two and five-tenths milligrams per kilogram of body weight were given four times per day for a total of nineteen injections. During these five days, twenty-four hour specimens of urine were collected, and were found to have 0.53, 0.62, 0.58, 1.16 and 0.59 mg. of lead per liter, respectively. During this second course of BAL, the patient's only complaints were referable to the injections themselves. He felt quite well three days after the last injection of BAL and left the hospital.

The patient was seen on one occasion twenty days after the last injection of BAL, and a routine urinalysis and blood count were obtained. The urine was completely normal (enough for a lead determination was not obtained); the red blood cell count was 4,460,000 with 12.2 Gm. of hemoglobin; the white blood cell count was 7,900; there were 86 per cent neutrophils, 1 per cent basophils, 2 per cent monocytes and 11 per cent "small mononuclears," and 0.47 per cent of the red blood cells were found to be stippled. The patient appeared to be in good health, but the "lead line" persisted in his gums.

CONCLUSIONS

The data in this one case of lead poisoning in which treatment was with BAL seem to indicate that the drug may be useful in diagnosis and in "deleading." This patient had a history of exposure; he experienced abdominal cramps and disturbances of bowel habits; he showed the "lead line" of the gums, the "pasty" coloration of the skin and an apparent apathy, and he was found to have the secondary anemia and the significant amount

3. Gray, L., and Greenfield, L.: High Calcium Therapy, Indust. Med. **8**: 507-510 (Dec.) 1939.
4. BAL (2,3-Dimercaptopropanol), editorial, Ann. Int. Med. **25**: 986-989 (Dec.) 1946.
5. Davison, R.: BAL Therapy of Dermatitis Caused by Injections of Gold Salts, Stanford M. Bull. **5**: 37-39 (Feb.) 1947.
6. Braun, H.; Lusky, L., and Calvery, H.: The Efficacy of 2,3-Dimercaptopropanol (BAL) in the Therapy of Poisoning by Compounds of Antimony, Bismuth, Chromium, Mercury, and Nickel, J. Pharmacol. & Exper. Therap. (supp.) **87**: 103-119 (Aug.) 1946.

of basophilic stippling of the red blood cells consistent with lead intoxication. However, it was only after administration of BAL that the concentration of lead in his urine rose to confirmatory levels. The increased excretion of lead was accomplished with only slight exacerbation of symptoms during the first course of BAL and with no reappearance of symptoms during the second, larger course of BAL, when heavier excretion of lead was obtained. The inference is that BAL is deserving of further trial in lead poisoning. It is suggested that three groups of persons be studied: one group of "normal" persons in whom there is no history of any possible exposure to lead poisoning—in order to determine whether BAL might draw the "normal amounts" of lead from the tissues; a second group in whom there is a history of exposure to lead poisoning, but who appear to be healthy—in order to determine whether BAL might be used as an aid in evaluating lead absorption, and a third group in whom there is frank lead intoxication—in order to determine whether BAL might be useful in improving the clinical course and in "deleading" safely.

SUMMARY

The problems of the diagnosis and treatment of lead poisoning are discussed briefly, and one case in which BAL was administered is reported. It is inferred that BAL is deserving of further trial as an aid in diagnosis and as a useful drug in the treatment of lead poisoning.

ELEPHANT TUSKS

A Source of Human Anthrax

ROY M. SEIDEMAN, M.D., Dr.P.H.
and
KENNETH M. WHEELER, Ph.D.
Hartford, Conn.

A clinically unsuspected case of anthrax with fatal termination is reported because of the unusual source of infection and the methods used for isolation of Bacillus anthracis from animal by-products. A search of the literature and personal communications [1] have revealed no reports of human infection in this country traced to elephants or their tusks. This case emphasizes the importance of adequate diagnosis and reporting of human cases with similar exposure in nonendemic areas.

REPORT OF A CASE

Patient's Illness.—On Dec. 7, 1946 O. R. C., a white man aged 59 years, noted a small pimple on the right side of his face. On the following day he felt ill, shaved as usual and sought a physician's advice because the lesion had become "worse." Topical soaks and oral chemotherapy were prescribed. He felt better but stayed at home. On the night of December 10 he became progressively ill with chills and fever. He was admitted to the hospital the morning of December 11 in a semicomatose condition with Cheyne-Stokes respiration, evidence of stiffness of the neck and rales in the chest. A spinal puncture yielded decidedly cloudy and hemorrhagic fluid, moderately xanthochromic after centrifugation; the cell count was 6,300 white blood cells per cubic millimeter with 93 per cent polymorphonuclear leukocytes and 7 per cent lymphocytes, and 15,000 red blood cells per cubic millimeter. A smear revealed large gram-positive, encapsulated rods occurring singly and in long chains; also gram-positive rods were noted in a smear of edematous material from the lesion on the face. Penicillin therapy was initiated, but the patient died five hours after admission.

Postmortem Observations.[2]—The primary lesion in the right cheek was 2 by 1.8 cm. in diameter, with dry and dark red, almost black center and a glistening red peripheral zone. On the right side there was a continuous chain of firm hemorrhagic cervical lymph nodes with loss of normal markings. There was approximately 25 cc. of dark slightly cloudy brown fluid in the pericardial cavity with a gelatinous and fibrin coagulum. The lower lobes of the lungs were hemorrhagic and edematous. The spleen was enlarged, with slate-colored capsule and dark purple and very mushy pulp. In the brain there was an extensive sanguine purulent exudate of the leptomeninges. Organisms morphologically and culturally resembling B. anthracis were isolated from blood, spinal fluid, the facial lesion, the lungs, the spleen, the pericardial fluid and the cervical lymph nodes; the culture from the spinal fluid was confirmed as B. anthracis by biochemical characteristics and animal inoculation at the Bureau of Laboratories of the State Department of Health.

Epidemiology.—Environmental History: Household.[3] There was no history of recent contact with wild or domestic animals excepting a pet cat, which approximately two months previously had an abscess of the cheek which healed with chemotherapy administered on November 11 to 13; subsequent blood examination of the cat by the precipitin test with known antianthrax serum was negative in result.[4] There had been no recent acquisition of leather apparel or brushes of any type.

Occupational. The patient was employed in a piano key industry and had contact with elephant tusks imported periodically from Africa. The superintendent reported no contact with felt, wool cloth or hide glue used in the same plant. The patient's specific work involved cutting of tusks with an electric saw under water lubricant. There was no previous treatment or cleansing of tusks except swabbing of core with water, a long-handled sponge swab being employed.

Plant Investigation: Preliminary spot sampling of surface areas of whole tusks as received at the plant was negative for B. anthracis on cultural examination. Negative results were likewise obtained for the cleansing sponge. Further extensive sampling of ivory was accomplished by use of a double bucket assembly, the sides and bottom of the inner bucket being perforated. Samples of tusk scraps, which had been sawed prior to the onset of illness, were placed in the inner bucket under tap water and brushed. The washings were drained and poured into sterile gallon (3.79 L.) jugs. Ten 1 gallon samples were collected: no. 1, tips, five year accumulation; no. 2 to 6, frayed shells, three year accumulation; no. 7 to 10, chips, random accumulation.

Laboratory Examination: The samples were concentrated in a Sharples centrifuge and the sediment taken up in about 50 cc. of water. Specimens were centrifuged in the order collected, and the bowl was cleaned and rinsed with water but was not sterilized between specimens.

The following day 1 pig per specimen was given an intraperitoneal injection of 8 to 10 cc. of the suspension. Nine of the 10 died within twenty-four hours. Gram-negative and gram-positive rods, not B. anthracis, were obtained on cultures and smears from heart blood. The surviving pig, into which specimen 1 had been injected, died on the third day. Smears and cultures of the heart blood and peritoneal fluid yielded a pure culture of a gram-positive spore-forming rod which was confirmed as B. anthracis by morphologic, cultural, biochemical and animal inoculation tests.

Because of the high fatality rate within twenty-four hours, another group of 10 pigs was given subcutaneous injections with a smaller dose, approximately one fifth the initial dose. Before injection the specimens were washed by centrifugation to eliminate preformed toxin and were heated at 65 C. for five minutes [5] to kill non-spore-forming bacteria. Eight pigs died thirty-six to forty-eight hours after injection, with signs of gas gangrene infection. Smears from the site of injection and from heart blood showed gram-positive bacilli. Aerobic cultures

From the Bureau of Industrial Hygiene and the Bureau of Laboratories, Connecticut State Department of Health.

1. (*a*) Steele, J. H.: Personal communication to the authors. (*b*) Giltner, L. T.: Personal communication to the authors.

2. Abridged from report by C. E. McLeod, pathologist, Middlesex Hosp., Middletown, Connecticut.

3. From report by Bureau of Preventable Diseases, Connecticut State Department of Health.

4. Test performed by E. Jungherr, Department of Animal Pathology, University of Connecticut.

5. Jones, E. R.: The Isolation of B. Anthracis from Industrial Material with Special Reference to the Resistance of the Spores to Heat, J. Path. & Bact. **54**: 307-314, 1942.

made from the site of injection gave spore-forming bacilli, not B. anthracis, in 4 cases, and no growth in the others. Anaerobic cultures made on 5 yielded principally spore-forming rods which were not identified beyond the genus Clostridium. The 2 pigs which had received specimens 1 and 9 died three and four days respectively after injection. B. anthracis was isolated in pure culture from both animals.

In an attempt to circumvent the killing by gas gangrene organisms 8 pigs were given gas gangrene antitoxin[6] prior to injection of specimens previously negative for B. anthracis. The antitoxin was given subcutaneously, followed one hour later by subcutaneous injection of freshly washed heated suspension (one fifth of the initial dose) of specimens 2 to 7 and 10 inclusive, which had been negative for B. anthracis. All pigs survived.

An attempt to isolate B. anthracis by cultural methods was unsuccessful. The original tusk washings after Sharples centrifugation were streaked on tryptose agar plates, and colonies with gross morphology resembling B. anthracis were fished to broth and semisolid agar. From the ten specimens one hundred and twenty-two plates were made and one hundred and ten colonies fished, all of which were motile gram-positive rods not B. anthracis and were not identified further.

COMMENT

Anthrax is primarily a disease of animals, chiefly Herbivora, and in the past has been reported from nearly every country in the world. It is prevalent in India and the Middle East[7] in hot and swampy districts with clay and loamy soils, especially where sanitary regulations are nonexistent or lax. Cases in elephants have been reported in Europe, India and Africa, and circus and zoo epizootics have occurred in Europe.[8]

Anthrax in man is almost exclusively a disease contracted from infected animals or animal products. In the United States human anthrax is primarily an occupational disease and occurs principally among dock workers (stevedores and warehouse men) and those engaged in industries utilizing leather, wool, hair or horn. Anthrax morbidity and fatality have declined with adoption of sanitary codes requiring sterilization of imported raw animal products and as a result of immediate medical therapy, of late with penicillin in adequate dosage.[9]

The present case is unusual in the source of infection. Contamination of the ivory with anthrax organisms may have been associated with specific infection in the elephant(s) involved, or accomplished during transport, either by native handling in Africa or by shipment with other animal products carrying the anthrax organism.

Of the two methods, culture and animal inoculation, generally recommended for isolation of B. anthracis,[10] the latter appears to be the method of choice as indicated in this case. When specimens are grossly contaminated with "dirt" organisms, including many anaerobic gas gangrene bacteria, as these were, the use of gas gangrene antitoxin appears worth while.

SUMMARY

The present case of fatal anthrax in a worker in the piano key industry whose infection was contracted from elephant tusks indicates the possibility of imported raw ivory as a source of infection. Until such time as a method for sterilization without alteration of the physical quality of ivory is devised and regulations for control are instituted, the case described illustrates the importance of considering anthrax in the differential diagnosis of cutaneous lesions in workers handling elephant tusks.

6. The antitoxin was supplied by Parke, Davis & Company.

7. Stein, C. D.: Studies and Observations on the Laboratory Diagnosis of Anthrax, Vet. Med. **37**: 526-535, 1942. Smyth, H. F.: Personal communication to the authors.

8. Steele.[10] Evans, G. H.: Elephants and Their Diseases, Rangoon, Burma, British Government Printing Office, 1910.

9. Murphy, F. D.; La Boccetta, A. C.; Lockwood, J. S.: Treatment of Human Anthrax with Penicillin, J. A. M. A. **126**: 948-950 (Dec. 9) 1944. Ellingson, H. V.; Kadull, P. J.; Bookwater, H. L., and Howe, C.: Cutaneous Anthrax, ibid. **131**: 1105-1108 (Aug. 3) 1946.

10. Hagan, W. A.: Laboratory Diagnosis of Anthrax: Diagnostic Procedures and Reagents, New York, American Public Health Association, 1945, pp. 434-440.

Council on Physical Medicine

The Council on Physical Medicine has authorized publication of the following report. HOWARD A. CARTER, *Secretary.*

SONOTONE HEARING AID, MODEL 700, ACCEPTABLE

Manufacturer: Sonotone Corporation, Elmsford, N. Y.

The Sonotone Hearing Aid, Model 700, may be used either as a self-contained hearing aid with batteries, amplifier and microphone in the same case or with a separate battery pack. The separate battery pack allows use of heavier but more economical batteries. Actual operation of the hearing aid, except for battery life, is the same for both. The instrument is in a plastic case with removable covers for either the self-contained battery compartment or the battery cord adapter. The self-contained unit can be used only with a 22½ volt B battery while the separate system allows the use also of the 33 and 45 volt B batteries.

Model 700 Mono-Pac.

Two wheel-type controls are at the top of the case. One is a volume control and the other is the on-off switch and bifocal control. The bifocal control is primarily a tone control attenuating the low frequencies. Two other tone controls are wrench-operated on the back of the instrument.

The wearing clip is attached to the back of the instrument but may be used on the front. Two magnetic receivers and two bone oscillators are available.

Dimensions and Weight

Dimensions:	
Mono-Pac	6.6 by 10.2 by 3.1 cm.
External batteries used	6.6 by 12.2 by 3.1 cm.
Weight:	
Mono-Pac A and B batteries alone	62 Gm.
Mono-Pac with batteries removed	183 Gm.
Weight of separate batteries alone	235 Gm.

Drain Measurements

Battery Data	Measured Voltage	Measured Current
A	1.00 volt	60 to 65 milliamperes
B: Quiet	21.25 volts	0.6 milliampere
Squealing	21.25 volts	0.4 milliampere

Acoustical Gain

Measurements were made of the acoustical gain in decibels (sound pressure level produced in a 2 cc. coupler in decibels above sound pressure at the face of the microphone set in a 16 by 8 inch [40.6 by 20.3 cm.] baffle). The input level was held constant at each frequency corresponding to 0.02 dyne/sq. cm. or equivalent to a level of 40 decibels above 0.0002 dyne/sq. cm.

Typical results when the volume control was set full on, were tabulated as follows:

Frequency	256	512	1,024	1,200	2,250	3,100	4,096 cycles/second
Full on: Tone 3 A, noise switch up	39	48	59	59	60	37	22 decibels
Tone 1 B, noise switch down	Noise	12	32	32	40	23	10 decibels

The following figures are approximate values of maximum pressure levels at three frequencies, set up in the regular coupler with volume control set for (1) full gain, (2) the 3 B tone setting and (3) the noise switch up setting:

Frequency	Input Level	Maximum Output Level
600 cycles	65 decibels	104 decibels
1,024 cycles	60 decibels	109 decibels
2,048 cycles	50 decibels	109 decibels

Intelligibility and articulation scores with a hard of hearing subject were 90 per cent or better. Whispered words were heard at a distance of 5 feet (152 cm.).

The Council on Physical Medicine voted to accept the Sonotone Hearing Aid, Model 700, for inclusion in its list of accepted devices.

V 1
194

COUNCIL ON PHARMACY AND CHEMISTRY

At periodic intervals the Council on Pharmacy and Chemistry will offer brief statements on the present status of therapeutic or prophylactic procedure in fields of current interest. This information will be selected for its special value to those engaged in general practice.

Though it is difficult to classify the nuances of experience with a drug of recent development, such as streptomycin, the following tables of diseases afford a fair estimate, for the present, of desirable balanced against undesirable effects.

Austin Smith, M.D., Secretary.

STREPTOMYCIN

EFFECTIVE IN

Many *gram-negative bacillary infections:*

- Tularemia
- Hemophilus influenzae meningitis and pneumonia
- Urinary tract infections, wound infections and bacteremias due to:
  - Escherichia coli
  - Bacillus proteus
  - Pseudomonas aeruginosa
  - Aerobacter aerogenes
- Plague
- Meningitis due to all gram-negative bacilli
- Infections due to Klebsiella pneumoniae
- Shigella dysentery

OCCASIONALLY EFFECTIVE IN

Certain infections due to gram-positive organisms and streptomycin-sensitive strains of organisms when they do not respond to penicillin:

(It is to be emphasized that penicillin is the drug of choice in the treatment of these infections, except diphtheria, and only rarely is streptomycin of clinical value.)

- Bacteremia and septicemia due to hemolytic streptococci
- Endocarditis due to green-producing streptococci (viridans)
- Staphylococcus aureus infections
- Staphylococcus albus infections
- Anthrax
- Diphtheria (but ineffective against toxin, therefore antitoxin should always be the primary treatment)

PARTIALLY EFFECTIVE, BUT EXTENT OF USEFULNESS STILL UNDETERMINED IN

- Pertussis
- Tuberculosis
- Leprosy
- Gonorrhea

GENERALLY NOT TO BE USED AT PRESENT IN

- Typhoid fever
- Paratyphoid fever
- Amebic dysentery
- Undulant fever
- Toxoplasmosis
- Histoplasmosis
- Acute rheumatic fever
- Disseminated lupus erythematosus
- Localized lupus erythematosus
- Infectious mononucleosis
- Pemphigus
- Acute and chronic leukemia
- Ulcerative colitis
- Coccidioidomycosis
- Malaria
- Poliomyelitis and all other viral infections
- Blastomycosis
- Moniliasis
- Syphilis

TOXICITY

Large doses or administration of streptomycin for longer than two or three weeks not infrequently leads to toxic reactions of varying severity. The most frequent serious toxic reaction is impairment of function of the vestibular portion of the eighth cranial nerve. All degrees of impairment of vestibular function have been observed, and this damage appears to be permanent. Compensation occurs in most patients, but total loss of vestibular function may severely handicap the patient. Loss of hearing, particularly to high frequencies, has also been observed and although often transitory may be serious. The occurrence of tinnitus is an indication for discontinuing therapy. Decreased kidney function and even anuria have been reported and occur most frequently in patients with previous kidney damage. Minor toxic reactions including pain at site of injection, urticaria and other cutaneous rashes are not infrequent following streptomycin therapy.

ADMINISTRATION

Streptomycin is supplied as a sulfate or hydrochloride salt in vials containing the equivalent of 1 Gm. of streptomycin base. The contents of the vial may be dissolved in sterile, pyrogen-free water or in isotonic sodium chloride solution to give a concentration of 100 to 500 mg. of streptomycin base per cubic centimeter. Although streptomycin is reasonably stable, solutions should be kept under refrigeration and should be prepared freshly each day.

DOSAGE

The dosage of streptomycin should be governed by the sensitivity of the infecting organism. In general, acute infections may be treated with a total dose of 2 or 3 Gm. daily, given in divided doses three to four hours apart. The drug should be given by intramuscular or subcutaneous injection. Oral dosage is ineffective, and intravenous administration may lead to undesirable side reactions. In chronic or less severe infections a daily dose of 1 to 2 Gm. may be sufficient to control the disease. In infections of the urinary tract success cannot be assured unless anatomic obstructions to urinary flow are removed. In mixed infections concomitant therapy with penicillin may be useful. Most infections due to susceptible organisms will respond within seven to fourteen days of the initiation of treatment. Prolonged therapy of acute infections is usually useless and may be dangerous.

Intrathecal injections of streptomycin must be employed in meningeal infections. The total daily dose should not exceed 50 to 100 mg., and the concentration of the drug should not be greater than 50 mg. per cubic centimeter. Severe neurologic reactions are occasionally observed following intrathecal administration of the drug.

STREPTOMYCIN RESISTANCE

Most susceptible organisms may rapidly become resistant to streptomycin. If therapy proves ineffective, an in vitro test of the infecting organism may reveal that it is resistant to high concentrations of streptomycin. In this event further streptomycin therapy will usually prove to be futile and undesirable.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 NORTH DEARBORN STREET - - CHICAGO 10, ILL.

Cable Address - - - - "Medic, Chicago"

Subscription price - - - - - Eight dollars per annum in advance

Please send in promptly notice of change of address, giving both old and new; always state whether the change is temporary or permanent. Such notice should mention all journals received from this office. Important information regarding contributions will be found on second advertising page following reading matter.

SATURDAY, NOVEMBER 29, 1947

INDUSTRIAL BERYLLIUM POISONING

Beryllium, one of the rare metals, was discovered in 1798 by Vauquelin. When combined with other metals, beryllium produces alloys that almost completely eliminate effects of strain and stress. Pure beryllium is obtained by processing beryllium oxyfluoride. Weber and Engelhardt [1] described respiratory conditions that occur among workers employed in the extraction of beryllium. Faroni of the Occupational Diseases Clinic in Milan, Italy, produced pulmonary lesions in guinea pigs by exposing them to fumes of beryllium carbonate. He called this specific form of pulmonary disease "berylliosis." Gelman and his co-workers [2] of the Obuch Institute for Occupational Diseases in Moscow observed cases of severe poisoning in workers exposed to vapors in the process of extracting beryllium from its fluorides. The clinical course was characterized by a two phase development. The first phase consisted of a chill and fever much like "metal-fume" fever. The second phase developed after one to four or more days and was characterized by an extensive bronchioloalveolitis, with a tendency to relapse and to exacerbation. Phases were not necessarily interrelated. Symptoms in the second phase were exceptionally severe dyspnea, cyanosis, paroxysmal cough and high temperature. Pneumonic complications were infrequent. Zamakovskaya and Magnitskiy of the same institute failed to produce pulmonary lesions in dogs and rabbits with beryllium oxide, berillium fluoride and pure metallic beryllium. Severe pulmonary lesions were produced in these animals when they were exposed to the vapors of beryllium oxyfluoride in the process of smelting. The toxic effect would appear, therefore, to be due to the vapors of beryllium oxyfluoride in a state of great dispersion. Vapor dispersion also explains the occurrence of typical poisoning of workers at a distance from the source of vapors, as in other shops of the plant and in the open.

Gelman expressed his belief that the first phase of poisoning is caused by vaporized beryllium, much as poisoning follows the inhalation of zinc, magnesium and copper fumes. The second phase is probably caused by the action of fluorine, which separates from the beryllium at the level of the bronchioles and alveoli. The fluorine in this case exerts its action in a nascent state.

In 1945 VanOrdstrand and his co-workers [3] at the Cleveland Clinic reported 170 cases of poisoning in three plants producing beryllium, its compounds and its alloys in the Cleveland area. Manifestations included contact dermatitis, chronic ulceration of the skin and inflammatory changes of the respiratory tract, the severest being a diffuse pneumonitis, which caused the death of 5 patients. The symptoms of pneumonitis were (1) cough with occasional blood-streaked sputum, (2) substernal burning pain, (3) dyspnea, (4) cyanosis, (5) abnormal sweetish taste, (6) anorexia with some weight loss and (7) increasing fatigue. Pulmonary changes noted roentgenologically developed two to three weeks after onset and were characterized by (1) diffuse haziness of both lungs, (2) irregular areas of infiltration with prominence of peribronchial markings, (3) absorption of soft infiltration and appearance of large discrete or small conglomerate nodules scattered throughout both pulmonary fields and (4) clearing of pulmonary fields after one to four months.

Hardy and Tabershaw [4] in 1946 called attention to "delayed chemical pneumonitis" in 17 workers exposed to beryllium. They stated that pneumonitis is an acute disease from which, if not fatal early, recovery takes place promptly after removal from exposure. The entity they describe is characterized by a delay between exposure and onset of illness of from three months to three years. Pyre and Oatway [5] reported 1 case with a delay of five years. In these cases the disease was progressive in spite of change of environment. Illness of long duration occurred and the prognosis was grave. The clinical course was characterized by great loss of weight and extensive roentgenologic changes in the lungs. Higgins [6] observed 35 instances of delayed chemical pneumonitis, which he would prefer to call "chronic pulmonary granulomatosis" or "pulmonary sarcoidosis." All but 2 of the 35 patients had been engaged in the manufacture of fluorescent lamps. Higgins likewise emphasized the long delay between exposure and the onset of symptoms, the average time being approximately three years. The pulmonary roentgenograms presented a characteristic picture. There was a diffuse granularity and nodulation throughout the entire pulmonary fields strongly resembling

1. Weber, H. H., and Engelhardt, W. E.: Untersuchung von Stauben aus der Berylliumgewinnung, Zentralbl. f. Gewerbehyg. u. Unfallverhütung. **10:** 41, 1933.

2. Gelman, J. G.: Beryllium (Glucinium), in Occupation and Health, Geneva, International Labour Office, 1938, supp.

3. VanOrdstrand, H. S.; Hughes, R.; DeNardi, J. M., and Carmody, M. G.: Beryllium Poisoning, J. A. M. A. **129:** 1084 (Dec. 15) 1945.

4. Hardy, H. L., and Tabershaw, I. R.: Delayed Chemical Pneumonitis Occurring in Workers Exposed to Beryllium Compounds, J. Indust. Hyg. & Toxicol. **28:** 197 (Sept.) 1946.

5. Pyre, J., and Oatway, W. H., Jr.: Beryllium Granulomatosis, Arizona Med. **4:** 21 (Sept.) 1947.

6. Higgins, H. L.: Pulmonary Sarcoidosis, Connecticut M. J. **11:** 330 (May) 1947.

miliary tuberculosis and silicosis. Microscopic studies revealed a typical granulomatosis. Studies of sputum and of sections of lung failed to reveal pathologic bacteria, except for an occasional diphtheroid bacillus, which has not been demonstrated to be a causative agent. Among his 35 cases there were 6 deaths. Sulfonamide drugs, penicillin and streptomycin have been tried without any appreciable effect.

Beryllium poisoning is becoming more important with the growth of this industry. Successful preventive measures are use of safety clothing, masks, adequate ventilation and proper protection of equipment.

PREPARATION FOR INDUSTRIAL MEDICINE

Most physicians in industry today have acquired proficiency without the advantage of formal training. Many of them believe that on the job experience is the best preparation for industrial medical service. The principal objection to this approach is that trained professional personnel is not produced regularly enough or in sufficient quantity to satisfy a continuous and growing demand.

Of several methods of advanced instruction now being developed, the residency system seems to offer the most promising means of creating a reservoir of qualified industrial physicians. It has the advantage of ready adaptation to extended periods of training leading toward certification, best accomplished through affiliation with one of the university-connected departments or institutes of industrial health now being developed in medical schools and schools of public health. Early in the current year, therefore, the Council on Medical Education requested the Council on Industrial Health to prepare criteria for residencies in occupational medicine. These essentials, prepared jointly with the American Association of Industrial Physicians and Surgeons, defined the special character of occupational medicine in terms of its four major components. In respect to health conservation, the physician in industry is expected to maintain and improve health, fitness and productive capacity through physical, mental and emotional appraisals, job evaluation and placement, health counseling and health education, and through the application of medical and psychiatric technics to industrial human relations. Medicine and surgery in industry deal with occupational diseases and the surgery of trauma; disability evaluation; rehabilitation; medicolegal relations; control of preventable illness, and the industrial implications of the specialties having industrial application. Environmental hygiene is concerned with the detection and control of occupational exposures, general plant sanitation and housekeeping, the personal hygiene of workers, accident prevention, regulatory codes and factory inspection laws. Administration includes planning and operation of a medical department; integration with related inplant functions; maintenance of adequate records and statistics, and correlation with community medical, hospital and health services.

To provide instruction of this comprehensive nature several types of facilities are necessary—inplant medical organization and affiliated hospital and laboratory services. The industrial organization should be of sufficient size and scope to support an industrial medical service having full time medical direction. Operations should be sufficiently diverse to provide a broad experience. The industrial medical department should be of sufficient size to accommodate the specific requirements of the plant and to make available facilities and equipment with which residents should become proficient. A well equipped laboratory of industrial hygiene should be readily accessible in the plant or through close affiliation. The affiliated hospital should meet the general requirements for residency approval. These criteria, modified in accordance with standard practices, were adopted by the Council on Medical Education and Hospitals and by the House of Delegates of the American Medical Association in Atlantic City, N. J., last June. Individuals or institutions considering themselves qualified to provide this kind of training should apply to that Council for approval.

Current Comment

EMPLOYABILITY OF PROSPECTIVE WORKERS

Many of those who write on the Selective Service statistics moan over the deplorable state of health in which the population of the United States found itself during World War II. They point to the large numbers of draft rejectees as a weighty health problem. A similar alarm was sounded during and immediately after World War I when young men were subjected to the physical tests of that period in order to be qualified for military service. The records show actually that the past quarter century has witnessed the greatest health progress of all time. Dr. Jean Spencer Felton,[1] who has reviewed the records of over ten thousand preplacement physical examinations in a wartime industry, points out that the most important quality possessed by these men was specifically their employability. Insufficient emphasis was laid on the worth of the men as capable workers in industry. The physical standards were of course different from those qualifying for military service and permitted this group to become economically sound through accurate studied job placement. Dr. Felton, superintendent of the health department of Monsanto Chemical Company, Clinton Laboratories, Oak Ridge, Tenn., recognizes the difference in standards between those established by the Army and Navy and those set by industry. With careful examination and judicious placement, however, the percentage of applicants which may be accepted

1. Felton, Jean Spencer: Review of 10,834 Preplacement Physical Examinations in Wartime Industry, Occup. Med. 3: 261 (March) 1947.

for employment in American industry is exceedingly high. Statistical evaluation of a group of 10,834 applicants examined showed 98.8 per cent (physically fit plus physically impaired) to be employable, a figure applicable with high certainty to any other group applying for work. Of the several conclusions reached in the article, three are quoted as noteworthy:

1. Economic usability, rather than the stringent standards of the wartime armed services, should be employed as the yardstick in measuring physical fitness.

2. In estimating the employability of large groups of prospective workers, physical disability need not necessarily be interpreted to mean occupational disability.

3. Accurate analyses of the physical demands of jobs should be accomplished in all industries in order to allow correct placement of a great source of available man power—the physically limited workers.

EIGHTH ANNUAL CONGRESS ON INDUSTRIAL HEALTH

Elsewhere in this issue (p. 843) appears the program for the eighth annual Congress on Industrial Health, to be held at the Cleveland Auditorium on Jan. 5 and 6, 1948. These dates immediately precede the scientific program which has been prepared for the interim session of the American Medical Association in Cleveland. Through this approximation of dates many general practitioners will find it possible to attend both sessions. As small plants constitute the major segment of industrial enterprise in this country, physicians in general practice will continue to supply the bulk of medical care which workers will receive through industrial channels. It has been abundantly demonstrated that small industry can avail itself of modern industrial health programs if community resources are properly organized. The programs of the Congress on Industrial Health are developed with this thought in mind.

FURNISHING INFORMATION FOR THE NEW MEDICAL DIRECTORY

On November 8, the Directory Department of the American Medical Association began mailing an International Business Machines (I. B. M.) Information Card to every physician in the United States. Only part of this work has been completed, and it will probably be December 10 before all the cards are in the mail. Please do not write to the Association unless you fail to receive a card by December 20. When you receive your card, fill it out at once, printing or writing plainly your name on the top line of the card. Use only the list of specialties given on the back of the card. The lines marked "Intern" and "Resident" should not be filled out unless you are *now* serving an internship or residency. The card should not be folded. Your I. B. M. (punched) card has a serial number in the upper right-hand corner. Use only the card that contains the same number as that on the slip on which your name and address appear. Do not use any other physician's I. B. M. card that may come to your address. If you receive a card for a physician who has moved, we should appreciate having you return the card; tell us, if possible, the physician's present address. Return the card promptly even though you have not changed your address since the last Directory, as the statistical information requested on the right-hand portion of the card is needed. If you change your address after your Directory Information Card is mailed to us, notify us promptly, as we will want to correct our Directory records; it may be possible to make the change in the proofs for the new Directory.

DOSAGE OF STREPTOMYCIN IN TUBERCULOSIS

In a recent report to the Council on Pharmacy and Chemistry [1] by the Veterans Administration, the Army and the Navy on their experience with the use of streptomycin in the treatment of tuberculosis in man, the data were obtained on patients treated with 2 Gm. of streptomycin a day for one hundred and twenty days. Although the results were encouraging in certain types of tuberculosis, 94 per cent of all patients showed some degree of damage to the vestibular portion of the eighth cranial nerve, and other toxic effects were reported in a substantial number of patients. At the fourth Streptomycin Conference held by the same groups in St. Louis, Oct. 9 to 12, 1947, reports were received on patients treated with several new dosage regimens. The results continued to be favorable. An important observation was that a dosage of 1 Gm. a day for one hundred and twenty days appeared to be giving as good results in 295 patients observed from sixty to one hundred and twenty days as did the former dosage schedule of 2 Gm. a day. Furthermore, those patients receiving the 1 Gm. dosage, divided into two injections of 0.5 Gm. each given at twelve hour intervals, showed the same degree of response as did those receiving the 1 Gm. dose in five injections of 0.2 Gm. each. Only 29 per cent of 182 patients treated with 1 Gm. of streptomycin given in five divided doses and 17 per cent of 156 patients treated with 1 Gm. of the drug given in two divided doses showed impairment of function of the eighth nerve. This observation is in contrast to the reported incidence of this complication in 94 per cent of the patients treated with 2 Gm. of streptomycin for a similar period of time. The incidence of other toxic reactions was less affected by the reduction in dosage. Tubercle bacilli isolated from patients on all regimens developed an in vitro resistance to streptomycin with similar frequency and rapidity. The fourth Streptomycin Conference recommended that all types of tuberculosis except miliary and meningitic, in which streptomycin may be a useful adjunct, be treated with 1 Gm. of streptomycin a day given in two doses of 0.5 Gm. each at twelve hour intervals by intramuscular injection for a total of one hundred and twenty days. In acute miliary tuberculosis and tuberculous meningitis intramuscular doses of 2 Gm. or more a day were recommended, and in the latter instance, the intrathecal injection of 50 mg. of streptomycin every one or two days. The effectiveness and toxicity of doses below 1 Gm. a day are being explored by the twenty-three hospitals cooperating in the study.

1. The Effects of Streptomycin on Tuberculosis in Man, report of the Council on Pharmacy and Chemistry, J. A. M. A. **135**: 634 (Nov. 8) 1947.

ORGANIZATION SECTION

Official Notes

EIGHTH ANNUAL CONGRESS ON INDUSTRIAL HEALTH

Preliminary Program

To be Held at Cleveland Auditorium, Cleveland, Jan. 5-6, 1948

MONDAY, JANUARY 5—10 A. M.

OPENING SESSION

GEORGE SYKES, M.D., Presiding

Call to Order.

Report of the Council on Industrial Health.
C. M. PETERSON, M.D., Secretary, Chicago.

Essential Correlations Between Medicine and Industrial Research.
Speaker to be Announced.

PANEL DISCUSSION ON HEALTH AND WELFARE IN THE LADIES' GARMENT INDUSTRY

A. J. LANZA, M.D., Presiding

History.
MAX MEYER, Chairman, Board of Fashion Institute of Technology and Design, and Central High School of Needle Trades, and Member, New York State Industrial Council, New York.

Present Scope and Procedure.
FREDERICK F. UMHEY, Executive Secretary, International Ladies Garment Workers' Union, New York.

Medical and Health Implications.
LEO PRICE, M.D., Director, Union Health Center, International Ladies Garment Workers' Union.

2:30 P. M.

CONFERENCE ON ADMINISTRATIVE PRACTICES

H. P. WORSTELL, M.D., Presiding

Plans for Small Plant Medical Services in New York.
KENNETH C. PEACOCK, M.D., Chairman, Committee on Industrial Health, Medical Society of the County of New York, New York.

Experiences in Health Education in Industry.
H. M. HARRISON, M.D., Medical director, Canadian Medical Institute, Toronto, Canada.

Intermission.

4 P. M.

HOW GOOD SHOULD INDUSTRIAL MEDICAL EXAMINATIONS BE?

Moderator:
JAMES ROSCOE MILLER, M.D., Dean, Northwestern University Medical School, Chicago.

Participants:
OSCAR A. SANDER, M.D., Milwaukee.
GEORGE GEHRMANN, M.D., Wilmington, Del.
WILLIAM A. SAWYER, M.D., Rochester, N. Y.

2:30 P. M.

CONFERENCE ON INDUSTRIAL PHYSIOLOGY

Physical Principles in Aviation Medicine.
J. H. TILLISCH, M.D., Mayo Clinic, Rochester, Minn.

Physiologic Requirements in Industrial Machine Design.
THEODORE F. HATCH, Research director, Industrial Hygiene Foundation of America, Inc., Pittsburgh.

The Physiology of the Bone Marrow in Relation to Industrial Intoxication.
LEONARD J. GOLDWATER, M.D., Professor of industrial hygiene, Columbia University School of Public Health, New York.

7 P. M.

HOUSE OF DELEGATES DINNER

Ballroom, Hotel Statler

Arranged by the Council on Industrial Health of the American Medical Association, with the joint sponsorship of the Cleveland Chamber of Commerce and the Cleveland Academy of Medicine.

TUESDAY, JANUARY 6—9 A. M.

ROUND TABLE CONFERENCE ON INFECTIONS OF THE UPPER PART OF THE RESPIRATORY TRACT

Moderator:
AUSTIN SMITH, M.D., Secretary, Council on Pharmacy and Chemistry, American Medical Association, Chicago.

Discussion Leaders:
M. V. VELDEE, Chief, Biologic Control Laboratory, National Institute of Health, Bethesda, Md.
ALVIN L. BARACH, M.D., New York.

Subjects:
Virus Vaccines—A Review and Evaluation.
Aerosol Therapy in General and Industrial Practice.

General Discussion.

9 A. M.

ROUND TABLE CONFERENCE ON NUTRITION IN INDUSTRY

Moderator:
JAMES S. MCLESTER, M.D., Chairman, Council on Foods and Nutrition, American Medical Association, Birmingham, Ala.

Discussion Leaders:
CHARLES C. LUND, M.D., Boston.
ROBERT S. GOODHART, M.D., New York.

Subjects:
Nutrition in Relation to Healing Processes.
Administration of an Industrial Nutrition Program.
Nutrition and Industrial Toxicology.

11 A. M.

THE OUTLOOK FOR INDUSTRIAL MEDICAL SERVICE

Moderator:
PAUL MAGNUSON, M.D., Washington, D. C.

Participants:
R. L. SENSENICH, M.D., President-Elect, American Medical Association, South Bend, Ind.
HERMAN G. WEISKOTTEN, M.D., Chairman, Council on Medical Education and Hospitals, American Medical Association, Syracuse, N. Y.
JAMES MCVAY, M.D., Chairman, Council on Medical Service, American Medical Association, Kansas City, Mo.

2 P. M.

ROUND TABLE CONFERENCE ON PHYSICAL MEDICINE AND REHABILITATION

Moderator:
FRANK KRUSEN, M.D., Vice Chairman, Council on Physical Medicine, American Medical Association, Rochester, Minn.

Discussion Leaders:
HOWARD RUSK, M.D., New York.
DONALD COVALT, M.D., Washington, D. C.
A. RAY DAWSON, M.D., Washington, D. C.
THOMAS B. MCKNEELY, M.D., Washington, D. C.

Subjects:
The Demands of Daily Living.
Current Research in Disability Evaluation.
Correlating Rehabilitation and Industrial Practice.

General Discussion.

4 P. M.

AMPUTATIONS CLINIC

Arranged by HENRY H. KESSLER, M.D., Chairman, Committee on Rehabilitation, Council on Industrial Health, Newark, N. J.

2:30 P. M.

SYMPOSIUM ON OCCUPATIONAL CANCER

DR. SHIELDS WARREN, Presiding

Pathologic Aspects. SHIELDS WARREN, M.D., Boston.
Chemical Aspects. WILLIAM SALTER, M.D., New Haven, Conn.
Clinical Aspects. W. C. HUEPER, M.D., New York.
General Discussion.

AMERICAN MEDICAL ASSOCIATION TO RECEIVE SCIENTIFIC AWARD

The midyear meeting of the American Pharmaceutical Manufacturers' Association will take place at the Waldorf-Astoria Hotel, New York, December 15-17 under the presidency of James L. Rogers, Seymour, Ind. On December 16 the ninth annual scientific award will be presented to the American Medical Association in recognition of its fundamental contributions to public health in the field of medical research. The award program will include morning and afternoon sessions, at each of which five papers will be presented on basic research in drug therapy. The award will be presented at the banquet and evening session in the Starlight Roof. Dr. George F. Lull, Secretary and General Manager of the American Medical Association, will preside over the opening session of the award program. The opening address will be made by Dr. Austin Smith, secretary of the Council on Pharmacy and Chemistry. Dr. Morris Fishbein, Editor of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, will preside over the afternoon session. Officers of the American Medical Association will be guests of honor at the banquet along with other distinguished guests from the medical and pharmaceutical professions. The speaker of the evening will be Dr. Edward L. Bortz, President of the American Medical Association, whose address will be on the advances made in medical research. Dr. Roscoe L. Sensenich, South Bend, Ind., President-Elect, will receive the scientific award on behalf of the medical association. A panel for consideration of economic and social trends will be given Monday afternoon and will include S. DeWitt Clough, president of Abbott Laboratories, North Chicago, Ill., chairman, and Drs. Fishbein and Sensenich.

Washington Letter

(From a Special Correspondent)

Nov. 27, 1947.

Expect Critical Shortage of Doctors

Dr. Paul R. Hawley, medical director, Veterans Administration, reports that the agency will shortly lose ninety-six physicians trained at government expense during the war. Under a new military ruling, those who entered military service before May 1, 1946 will be eligible for return to civilian life by December 1. Ninety-three physicians trained under the Navy V-12 program and three trained by the army will be released. Dr. Hawley said that their departure would hurt the agency's medical program. After May 1, 1948, he explained, the service periods of most of the other 1,262 military physicians will expire and "the situation will become critical." There are 1,357 military doctors now at veterans' hospitals, among the 3,474 full-time physicians now on duty. In addition the Veterans Administration has literally hundreds of specialist consultants devoting part of their time to the hundred and twenty-six veterans' hospitals. The agency also endeavors to develop specialists as psychiatrists and has some 1,910 young doctors of medicine in resident training at the institutions. Navy officials report that the December 1 release date will affect a total of about 2,200 military physicians.

Four Million Dollars for Cancer Research

Mrs. Mary E. Stewart, District of Columbia resident for many years, who died here last October 16, left $4,000,000 to fight cancer, probate disclosed. The fund is to be placed in trust to be used after the death of a sister, Mrs. Daniel B. Devore, who has been named an executor.

Committee Approves Federal Aid on Health

The Legislative Committee of the National Congress of Parents and Teachers, meeting here, approved introduction of a bill in Congress to provide federal funds to assist states in the development and maintenance of health units. The bill would provide federal aid in all communities where full public health services are not now available. Dr. G. F. Moench, chairman, Health and Summer Roundup Committee, said that only 4 per cent of the American people are helped by local health units meeting the minimum standards of the American Public Health Association. He said that forty million persons are not covered by any health service.

Commission Controls Export of Research Equipment

The U. S. Atomic Energy Commission has limited the export of equipment which may be used for research and production of atomic energy. The commission said a new regulation requires the issuance of export licenses and will effectively control" the export of two classes of equipment: (1) facilities for producing any fissionable material and (2) component parts of the equipment used in producing atomic energy, such as radiation detection equipment.

New York Authority Checking Gallinger Hospital

Dr. Samuel B. Wortis, chief, psychiatric division, Bellevue Hospital, New York, has accepted the invitation of the U. S. Public Health Service to study psychiatric services at Gallinger Hospital, whose facilities for handling psychiatric patients have been criticized.

Disabled Veteran Chief Says Hospitals Are Crowded

John L. Golob, National Commander, Disabled American Veterans, charged at a press conference that Veterans Administration hospitals are so crowded that some disabled veterans have to be kept in other institutions while awaiting admission. He asked for increased compensation for disabled former servicemen and for allowances to their dependents.

Coming Medical Meetings

American Medical Association Interim Session, Cleveland, Jan. 5-8. Dr. George F Lull, 535 N. Dearborn St., Chicago 10, Secretary.

Annual Congress on Industrial Health, Cleveland, Jan. 5-6. Dr. Carl M. Peterson, 535 N. Dearborn St., Chicago 10, Secretary.

American Academy of Allergy, St. Louis, Hotel Jefferson, Dec. 15-17. Dr. Theodore L. Squier, 425 E. Wisconsin Ave., Milwaukee 2, Secretary.

American Academy of Dermatology and Syphilology, Chicago, Palmer House, Dec. 7-11. Dr. Earl D. Osborne, 471 Delaware Ave., Buffalo, N. Y., Secretary.

American Academy of Pediatrics, Dallas, Texas, Dec. 8-11. Dr. Clifford G. Grulee, 636 Church St., Evanston, Ill., Secretary.

American Society for Surgery of the Hand, Chicago, Jan. 23-24. Dr. Joseph H. Boyes, 1401 S. Hope St., Los Angeles 15, Secretary.

American Society of Anesthesiologists, New York, Hotel New Yorker, Dec. 4-5. Dr. Curtiss B. Hickcox, 745 Fifth Ave., Room 1503, New York 22, Secretary.

American Society of Tropical Medicine, Atlanta, Ga., Dec. 2-4. Dr. Norman H. Topping, National Institute of Health, Bethesda 14, Md., Secretary.

Post Graduate Medical Assembly of South Texas, Houston, Texas, Coliseum, Dec. 1-3. Dr. E. Trowbridge Wolf, 229 Medical Arts Bldg., Houston, Texas, Secretary.

Puerto Rico, Medical Association of, San Juan, Dec. 10-14. Dr. Jeramfel Cordero, Box 3866, Santurce, Secretary.

Radiological Society of North America, Boston, Nov. 30-Dec. 5. Dr. Donald S. Childs, 607 Medical Arts Bldg., Syracuse 2, N. Y., Secretary.

Seaboard Medical Association of Virginia and North Carolina, Virginia Beach, Va., Dec. 2-5. Dr. Clarence Porter Jones, 3117 West Ave., Newport News, Va., Secretary.

Southeastern Allergy Association, Richmond, Va., Jefferson Hotel, Jan. 17-18. Dr. Katharine B. MacInnis, 1515 Bull St., Columbia 49, S. C., Secretary.

Southern Surgical Association, Hollywood, Fla., Dec. 9-11. Dr. Alfred Blalock, Johns Hopkins Hospital, Baltimore 5, Secretary.

Western Surgical Association, Colorado Springs, Broadmoor Hotel, Dec. 4-6. Dr. Warren H. Cole, 1853 West Polk St., Chicago 12, Secretary.

V 1
1947

State Legislation

SUMMARY SURVEY OF STATE LEGISLATION OF INTEREST TO PHYSICIANS

PREPARED BY GEORGE E. HALL
Bureau of Legal Medicine and Legislation

Forty-seven state legislatures were busy during the twelve month period from July 1, 1946 to June 30, 1947, forty-four in regular session and three in special session. Over 60,000 separate bills were introduced, about 3 per cent of definite interest to the medical and allied professions. During the first six months of 1947, 1,706 proposals received special consideration by the staff of this Bureau; 849 were indexed under the pertinent subject so they may be referred to later if the occasion arises; 857 were indexed and also subjected to analysis and a brief statement thereof filed away for future reference. These brief descriptive statements were published in THE JOURNAL in the case of 479 proposals at the time the proposal was introduced, at the time it passed either house or senate, at the time it was enacted or at all such times. Of the 1,706 proposals of medical interest, about 22 per cent were finally enacted. These new laws are covered briefly in this survey.[1]

I. ALLIED PROFESSIONS AND SUNDRY VOCATIONS

Chiropody.—Bills relating to the definition or scope of chiropody were enacted in Colorado, Nebraska, New Jersey, Ohio and Pennsylvania. The Colorado law [2] amended the existing chiropody practice act by defining the practice of chiropody as "the diagnosis and medical, surgical, mechanical, manipulative and electrical treatment of ailments of the human toe, foot and leg, excepting any amputation and excepting the administration of an anesthetic other than local." The Nebraska law [3] added to the present definition the following words: "Practice of chiropody is defined to be the surgical, mechanical, and medical treatment of bunions, corns, abnormal nails, warts, callouses, and all superficial excrescencies of the foot; but shall not include surgical operations upon the feet for congenital or acquired deformities other than those already named or conditions requiring the use of anaesthetics other than local nor shall it include amputation." The New Jersey law [4] redefined the practice of chiropody as "the diagnosis of or the holding out of a right or ability to diagnose any ailment of the human foot, or the treatment thereof or the holding out of a right or ability to treat the same by any one or more of the following means: local, medical, mechanical, minor surgical, manipulative and physiotherapeutic or the application of external medical or any other of the aforementioned means except minor surgical and local medical to the lower leg and ankle for the treatment of a foot ailment: not including, however, the treatment of tuberculosis, osteomyelitis, malignancies, syphilis, diabetes, tendon transplantations, bone resections, amputations, fractures, dislocations, the treatment of varicose veins by surgery or injection, the administration of anesthetics other than local, the use of radium, the use of x-rays except for diagnosis, or the treatment of congenital deformities by the use of a cutting instrument or electrosurgery. The term 'local medical' hereinbefore mentioned shall be construed to mean the prescription or use of a therapeutic agent or remedy where the action or reaction is intended for a localized area or part." The Ohio law [5] authorized the state board of medical examiners to adopt rules and regulations permitting, in the practice of chiropody, the use of such drugs as are necessary to such practice. The Pennsylvania law [6] redefined the practice of chiropody as "the diagnosis and treatment of the ailments of the human foot. This shall not confer the right to amputate any part of foot, leg or toes or the use of any anesthetic other than local or the treatment of any constitutional disease." A few miscellaneous enactments relating to chiropody were also passed in a number of states. An Oregon law [7] provided that a practicing chiropodist must designate himself as "registered chiropodist" but may also use the expression "foot specialist" in addition thereto. California [8] increased the necessary length of study at a professional school from three to four resident courses. An Illinois law [9] increased the preliminary and professional educational requirements of chiropodists. A Vermont law [10] increased the course of professional study by one hundred and twenty hours and added a requirement of one year of a liberal arts college education prior to the beginning of professional study. Another California law [11] omitted the requirement that chiropodists should show certain educational work each year at the time of paying the annual tax and registration fee. A final bill of some importance is a Florida law [12] which authorized the board of chiropody examiners to use the injunctive process, in addition to other remedies already stated in the law, in enforcing violations thereof.

Cosmetology.—An Arkansas law [13] created a board of cosmetology for the purpose of regulating the vocation of cosmetic therapy or beauty culture. Extensive amendments to the Florida [14] beauty culture law were enacted and a new revised act relating to hairdressers, cosmetologists, etc., was passed in Texas.[15] A North Dakota law [16] provided more specific definitions of cosmetology, student, instructor, operator, etc. Arizona [17] and Oregon [18] enacted laws which detail hygienic and other requirements for cosmetology and beauty culture shops. A Vermont law [19] increased the length of professional study for the practice of cosmetology by five hundred study hours. South Dakota [20] and Wyoming [21] now require cosmetologists and practitioners of cosmetic therapy, beauty culture and hairdressing to register their licenses annually. A California law [22] provided that under no circumstances shall a temporary license be issued by the state board of cosmetology. A Maryland law [23] amended the law relating to hairdressers and beauty culturists by providing regulations for the licensing of electrologists.

Dentistry.—Laws relating to the practice of dentistry were enacted in Arizona, California, Maine, Maryland, Michigan, Missouri, Montana, Nevada, New York, North Dakota, Oklahoma, Oregon, Pennsylvania and Texas. Seven of these (Arizona,[24] Maryland,[25] Missouri,[26] Nevada,[27] North Dakota,[28] Pennsylvania [29] and Maine [30]) relate to the licensing of dental hygienists. All of them defined a dental hygienist substantially as a person who under any circumstances attempts to or does make dental examination of or remove lime deposits, accretions or stains from the exposed surfaces of the teeth of another person. The Maine law also exempted dentists from jury service. A Maryland law [31] amended the dentistry practice act by requiring annual registration of dentists, and a Michigan law [32] required annual registration of both dentists and dental hygienists. A New York law [33] provided special regulations for den-

1. Although the Alabama legislature was in regular session during part of the period covered by this survey, final action on most of the proposals had not been received at the time this survey was prepared. They must therefore be included in next year's survey.
2. Colo., Laws, 1947, c. 237.
3. Neb., Laws, 1947, c.——, approved May 28, introduced as L.B. 389.
4. N. J., Laws, 1947, c. 355.
5. Ohio, Laws, 1947, c.——, approved May 17, introduced as H. 294.
6. Pa., Acts, 1947, Act No. 416.
7. Ore., Laws, 1947, c. 400.
8. Calif., Laws, 1947, c. 289.
9. Ill., Laws, 1947, c.——, approved July 21, introduced at S. 21.
10. Vt., Laws, 1947, c.——, approved April 22, introduced as S. 54.
11. Calif., Laws, 1947, c. 290.
12. Fla., Laws, 1947, c.——, law without approval June 16, introduced as H. 739.
13. Ark., Acts, 1947, Act No. 399.
14. Fla., Laws, 1947, c.——, law without approval June 16, introduced as H. 497.
15. Texas, Laws, 1947, c. 333.
16. N. D., Laws, 1947, c. 297.
17. Ariz., Laws, 1947, c. 134.
18. Ore., Laws, 1947, c. 222.
19. Vt., Laws, 1947, c.——, approved March 19, introduced as H. 115.
20. S. D., Laws, 1947, c. 125.
21. Wyo., Laws, 1947, c. 94.
22. Calif., Laws, 1947, c. 1513.
23. Md., Laws, 1947, c. 704.
24. Ariz., Laws, 1947, c. 36.
25. Md., Laws, 1947, c. 891.
26. Mo., Laws, 1947, c.——, approved July 24, introduced at H. 105.
27. Nev., Laws, 1947, c. 161.
28. N. D., Laws, 1947, c. 298.
29. Pa., Acts, 1947, Act No. 439.
30. Maine, Public Laws, 1947, c. 139.
31. Md., Laws, 1947, c. 324.
32. Mich., Acts, 1947, Public Act No. 205.
33. N. Y., Laws, 1947, c. 455.

tists who were in the armed forces by authorizing them to be employed in public dispensaries and institutions for two years after graduation under the supervision of a licensed dentist. A California enactment [34] required persons engaged in the practice of dentistry, either privately or as employees of a governmental agent or political subdivision, to be licensed by the board of dental examiners. This provision, however, does not apply to practice by the personnel of the Army or Navy or employees of the U. S. Public Health Service, Veterans Administration or Indian Affairs while engaged in the discharge of their official duties. A Montana law [35] required the director of dental health of the state to be licensed to practice dentistry in some state or the District of Columbia. An Oklahoma law [36] created within the state health department a division to be known as the Division of Preventive Dentistry to administer a program of dental care, consultation, research and health education designed to improve the dental health of the people of the state. An Oregon law [37] provided that members of the board of dental examiners shall be chosen from a list submitted by the Oregon state dental association. A Texas law [38] amended the existing dental practice act by including more detailed definitions of acts which constitute unprofessional conduct.

Nursing.—Various laws relating to the practice of nursing were enacted in some twenty-three states. Five states enacted legislation either creating or perfecting methods for regulating the licensing of professional nurses. Three of these states (New Hampshire,[39] Illinois [40] and South Dakota [41]) defined the practice of professional nursing substantially as the performance of professional services requiring the application of principles of nursing based on biological, physical and social sciences, such as responsible supervision of a patient requiring skill in observation of symptoms and reactions, and the accurate recording of the facts and carrying out of treatments and medications as prescribed by a licensed physician, and the application of such nursing procedures as involve understanding of cause and effect in order to safeguard life and health of such patient and others. The other two states (Montana [42] and Nevada [43]) did not define the practice of nursing but merely set forth certain educational and practical requirements which an applicant for licensure must meet. Five states (Arkansas,[44] Idaho,[45] Minnesota,[46] North Carolina [47] and North Dakota [48]) enacted legislation requiring the creation of a board of examiners for practical nurses and setting forth educational and training requirements for persons desiring to practice as such. The Minnesota act defined the practice of nursing by a licensed practical nurse as "the performing for compensation or personal profit, services required in the nursing care of the sick, not involving the specialized education, knowledge and skill required in professional nursing." The North Dakota law, on the other hand, defined a practical nurse as any nursing attendant, auxiliary worker, subsidiary worker, vocational nurse or any other person who cares for the sick for hire who is not a professional registered nurse. Two other states (New Jersey [49] and Utah [50]) enacted legislation providing for regulations for the licensing of both professional and practical nurses. As stated in the New Jersey law, the distinction between the two types of nurses is: Professional nursing is the performance of any professional service requiring the application of principles of nursing based on biological, physical and social sciences, including responsible supervision of a patient requiring skill in observation of symptoms and reactions and the accurate recording of the facts and carrying out of treatments and medications prescribed by a licensed physician, and the application of such nursing procedures as involve understanding of cause and effect in order to safeguard life and health of a patient and others. Practical nursing is the performance of such duties as are required in the care of a patient in carrying out of medical orders prescribed by a licensed physician, requiring an understanding of elementary nursing but not requiring the professional service outlined in the definition of professional nursing. In Connecticut [51] the nursing act was amended so as to waive the age requirement for members of the United States cadet nurse corps. A Maine law [52] required the governor to appoint members to the board of registration of nurses from a list furnished by the Maine State Nurses' Association. In New Jersey [53] no person shall be appointed as a school nurse unless he or she holds an appropriate certificate issued by the state board of examiners. A Wisconsin law [54] lowered the age limit from 19 to 18 and reduced the preliminary educational requirement to two years of high school. And in Wyoming [55] the nursing practice act was amended so as to require the annual registration of such licentiates.

Optometry.—A California law [56] amended the labor code by defining the word physician as used therein to include optometrists when relating to medical services rendered under the workmen's compensation act.

Pharmacy.—A California law,[57] which provided regulations for the operation of a pharmacy, contained the provision that no hypodermic needle or syringe shall be sold for human use except on the prescription of a physician and surgeon, dentist or chiropodist. An Illinois law [58] exempted physicians, dentists and veterinarians from the pharmacy act if they label their prescriptions in the manner specified in such act. A North Carolina law [59] authorized the use of the injunctive process to restrain the illegal practice of pharmacy.

II. CONTROL OF DISEASE

Cancer.—A Delaware law [60] made an appropriation for cancer control and created an Advisory Committee to consult with the State Board of Health relative to the cancer program in the state. One California law [61] provided an appropriation of $250,000 to be expended by the University of California to conduct additional research on the origin, prevention and cure of cancer. Another California law [62] directed the state department of public health to investigate the problems involved in the reduction of deaths and disability from cancer and other chronic diseases. A Florida law [63] required the state board of health to formulate a plan for the care and treatment of persons suffering from cancer and to establish and designate standard requirements for the organization, equipment and conduct of cancer units or departments in hospitals or clinics in the state. A Louisiana law,[64] passed last year but too late to be included in the 1946 survey, provided for the submission to the voters of a constitutional amendment which would authorize construction of a charity hospital for the care of the chronic and acutely ill, the tubercular, the psychiatric, persons suffering from poliomyelitis, persons in need of thoracic surgery and persons suffering from cancer. An Oregon law [65] designated the state board of health as the agency to apply to the federal government for funds for cancer control, mental hygiene and industrial hygiene programs. South Carolina [66] provided for the establishment of a state cancer clinic and an investigation relative to the establishment of a cancer hospital. Texas [67] authorized the state to accept title to the M. D. Anderson Hospital for Cancer Research, and other purposes. A Vermont law,[68] passed last year but

34. Calif., Laws, 1947, c. 622.
35. Mont., Laws, 1947, c. 189.
36. Okla., Laws, 1947, c.——, approved May 16, introduced as S. 100.
37. Ore., Laws, 1947, c. 318.
38. Texas, Laws, 1947, c. 371.
39. N. H., Laws, 1947, c. 285.
40. Ill., Laws, 1947, c.——, approved July 8, introduced at H. 253.
41. S. D., Laws, 1947, c. 123.
42. Mont., Laws, 1947, c. 253.
43. Nev., Laws, 1947, c. 256.
44. Ark., Acts, 1947, Act No. 64.
45. Idaho, Laws, 1947, c. 96.
46. Minn., Laws, 1947, c. 407.
47. N. C., Laws, 1947, c. 1091.
48. N. D., Laws, 1947, c. 299.
49. N. J., Laws, 1947, c. 262.
50. Utah, Laws, 1947, c. 32.
51. Conn., Acts, 1947, Public Act No. 280.
52. Maine, Public Laws, 1947, c. 70.
53. N. J., Laws, 1947, c. 133.
54. Wis., Laws, 1947, c. 450.
55. Wyo., Laws, 1947, c. 18.
56. Calif., Laws, 1947, c. 1404.
57. Calif., Laws, 1947, c. 931.
58. Ill., Laws, 1947, c.——, approved July 21, introduced at S. 273.
59. N. C., Laws, 1947, c. 229.
60. Del., Laws, 1947, c. 262.
61. Calif., Laws, 1947, c. 360.
62. Calif., Laws, 1947, Resolution c. 160.
63. Fla., Laws, 1947, c.——, law without approval June 16, introduced as H. 384.
64. La., Acts, 1946, Act No. 414.
65. Ore., Laws, 1947, c. 154.
66. S. C., Acts, 1947, Gov. Act 547; Acts, 1947, Gov. Act—approved March 13, introduced as H. 132.
67. Texas, Laws, 1947, c. 300.
68. Vt., Laws, 1946, c.——, approved September 28, introduced as S. 2-X.

too late to be included in the 1946 survey, authorized the State Cancer Commission to expend funds for furnishing clinical care to indigents suffering from cancer.

Tuberculosis.—One Illinois law [69] established an Institution for Tuberculosis Research under the direction of the Municipal Sanitarium of Chicago and the University of Illinois, and another Illinois law [70] provided for the establishment of a series of tuberculosis sanatoriums throughout the state for the free care and treatment of residents of the state. An Iowa law [71] provided for free treatment for tubercular patients and authorized a district court to commit a patient to a sanatorium in instances in which a patient attempts to leave the sanatorium prior to his complete cure. A Maine law [72] required an annual examination for tuberculosis of all superintendents of schools, supervisors, teachers, school nurses, janitors, school bus drivers and persons employed in the preparation of school lunches. One Tennessee law [73] provided free care for all tubercular patients—not just the indigent; and another Tennessee law [74] provided for the erection of tuberculosis hospitals throughout the state. A Florida law [75] authorized the construction, equipping, enlarging, etc., of tuberculosis sanatoriums in the state. An Indiana law [76] amended the law relating to the maintenance of county tuberculosis hospitals by providing that the superintendent of such hospital shall be a graduate of a recognized medical college with an experience of at least three years in actual practice of his profession.

Venereal Diseases.—A Vermont law [77] amended the law relating to venereal diseases by providing for free hospitalization of venereal disease patients. The prior law provided only for the treatment of such patients.

Miscellaneous.—A new Oklahoma law [78] created an Oklahoma spastic paralysis commission to provide treatment and care of persons so afflicted, and a South Carolina law [79] provided funds for a DDT spraying project for the malarial control program of the state.

III. FOODS, DRUGS, COSMETICS AND THERAPEUTIC DEVICES

Barbiturates and Hypnotics.—Seven states enacted legislation requiring that barbituric acid and its compounds be sold only on a physician's prescription. In Alabama,[80] Idaho [81] and South Dakota [82] specific laws relating to barbiturates only were enacted. They prohibited the sale of barbiturates except on the original prescription of a person licensed to prescribe and administer barbiturates. The Idaho law prohibited the refilling of such prescriptions unless authority therefor is designated thereon. A Wisconsin law [83] amended the dangerous drug act so that the term dangerous drug would include any hypnotic drug (including acetylurea derivatives, barbituric acid or malonylurea derivatives, chloral, paraldehyde, phenylhydantoin derivatives, sulfonmethane derivatives or any compounds or mixtures or preparations thereof that may be used for producing hypnotic effects); aminopyrine, amphetamine, desoxyephedrine, cinchophen, neocinchophen, diethylstilbestrol, ergot, cotton root, oils of croton, rue, savin or tansy, sulfanilamide or substituted sulfanilamides, thyroid, or compounds or mixtures of any of such drugs. A Maryland law [84] repealed the existing law regulating the sale of barbituric acid and enacted a new law designed for the same purpose. A Georgia law [85] amended the law relating to the sale of drugs by adding to the list of drugs which may be sold only on the prescription of a duly licensed physician the following: phenobarbital, sulfapyridine, sulfathiazole, "pyramidon" or aminopyrine, "atophan" or cinchophen, chloral, paraldehyde; abortifacient drugs such as ergot, cotton root, pennyroyal, savin, apiol, cantharides; also amphetamine ("benzedrine") or any other preparation containing amphetamine or compound thereof, except that amphetamine in inhalers may be sold without prescription provided the amphetamine therein has been denatured so as to make it unfit for internal use; hormones, synthetic or natural; antifat preparations to include thyroid, thyroxin; or such other drugs which are now or hereafter declared dangerous by the Federal Food and Drug Administration, and which are, in the discretion of the Georgia State Board of Pharmacy, classified as "Dangerous Drugs" within the meaning of this act. Illinois [86] amended the criminal code so as to make it unlawful for a pharmacist to deliver any barbiturate except on the original prescription of a person licensed by law to prescribe and administer barbiturates.

Narcotics.—A Nebraska law [87] amended the narcotic drug act by defining narcotic drugs so as to include isonipecaine or any other substance recognized as a narcotic drug by the Congress of the United States. A New Hampshire law [88] exempted a physician or dentist prescribing, administering or dispensing narcotic drugs to patients in good faith in the course of professional practice from the provisions of the law relating to narcotics.

Poisons.—Two California laws amended the health and safety code relating to poisons or hypnotic drugs. One of them [89] amended the health and safety code by providing that prescriptions for hypnotic drugs should not be refilled except on the specific authorization of the prescriber; the other [90] amended the health and safety code relating to poisons by including osteopaths within the definition of the term "physician." A New York law [91] prohibited the sale of poisonous, deleterious or habit-forming drugs at auction except under the personal supervision of a licensed pharmacist.

Thyroid.—A Connecticut law [92] added thyroid to the list of drugs which may be sold only on a written prescription signed by a member of the medical, dental or veterinary profession licensed by law to administer such drug.

Miscellaneous Drugs.—A New Jersey law [93] authorized the state department of health to purchase and distribute free, in accordance with rules of said department, antibiotics for use in preventing or treating communicable diseases. A North Carolina law [94] made it unlawful for any person in Swain County to possess "Abbott's Bitters" except on the prescription of a regularly licensed physician in the county.

IV. HOSPITALS

Employees.—A new Minnesota law [95] prohibited hospital employees of a charitable hospital from encouraging, participating in or causing any strike or work stoppage against or directly involving such charitable hospital.

Liability for Taxes.—A Maryland law [96] exempted from taxation buildings, equipment and furniture of hospitals, asylums, charitable or benevolent institutions, no part of the net income of which inures to the benefit of any private shareholder or individual, and the ground, not exceeding 100 acres in area, appurtenant thereto and necessary for the respective uses thereof. A similar law in Georgia [97] provided the same thing with reference to hospitals not operated for private or corporate profit.

Licensing Requirements.—Sixteen states enacted legislation providing for the licensing, regulating and inspecting of hospitals within the state. They are Arizona,[98] Florida,[99] Idaho,[100] Iowa,[101] Kansas,[102] Montana,[103] Nebraska,[104] New Hamp-

69. Ill., Laws, 1947, c.——, approved July 7, introduced as S. 130.
70. Ill., Laws, 1947, c.——, approved July 8, introduced at H. 280.
71. Iowa, Laws, 1947, c. 120.
72. Maine, Public Laws, 1947, c. 367.
73. Tenn., Public Acts, 1947, c. 203.
74. Tenn., Public Acts, 1947, c. 23.
75. Fla., Laws, 1947, c.——, approved May 3, introduced at S. 118.
76. Ind., Laws, 1947, c. 84.
77. Vt., Laws, 1947, c.——, approved March 7, introduced at S. 8.
78. Okla., Laws, 1947, c.——, approved May 7, introduced at H. 300.
79. S. C., Acts, 1947, Gov. Act 97.
80. Ala., Laws, 1947, Gov. Act 314.
81. Idaho, Laws, 1947, c. 143.
82. S. D., Laws, 1947, c. 100.
83. Wis., Laws, 1947, c. 424.
84. Md., Laws, 1947, c. 739.
85. Ga., Acts, 1947, Gov. Act 357.
86. Ill., Laws, 1947, c.——, approved August 7, introduced as H. 67.
87. Neb., Laws, 1947, c.——, approved June 4, introduced at L.B. 507.
88. N. H., Laws, 1947, c. 258.
89. Calif., Laws, 1947, c. 648.
90. Calif., Laws, 1947, c. 199.
91. N. Y., Laws, 1947, c. 844.
92. Conn., Acts, 1947, Public Act No. 7.
93. N. J., Laws, 1947, c. 323.
94. N. C., Laws, 1947, c. 803
95. Minn., Laws, 1947, c. 335.
96. Md., Laws, 1947, c. 335.
97. Ga., Acts, 1947, Gov. Act 320.
98. Ariz., Laws, 1947, c. 130.
99. Fla., Laws, 1947, c.——, law without approval June 16, introduced as H. 257.
100. Idaho, Laws, 1947, c. 133.
101. Iowa, Laws, 1947, c. 91.
102. Kan., Laws, 1947, c. 329.
103. Mont., Laws, 1947, c. 269.
104. Neb., Laws, 1947, c.——, approved June 9, introduced at L.B. 250.

shire,[105] North Carolina,[106] North Dakota,[107] Oregon,[108] South Carolina,[109] Tennessee,[110] Utah,[111] Virginia [112] and West Virginia.[113] All these laws followed, with varying degrees of preciseness, the model hospital licensing law prepared by the Council of State Governments. They were all broad enough to include public as well as private hospitals and, with the possible exception of North Dakota, Tennessee and Virginia, they all provided for the appointment by the respective state governor of an advisory hospital council. The Florida, Idaho and Virginia laws exempted therefrom institutions conducted for those who rely on treatment by prayer or spiritual means in accordance with the creed or tenets of any well-recognized church or denomination. The North Dakota law specifically exempted chiropractic hospitals. The Florida law prohibited the rule-making authority from making any rule which would have the effect of denying a license to a hospital or other institution solely by reason of the school or system of practice employed or permitted to be employed by physicians therein provided such school or system of practice is recognized by the laws of the state. The Kansas law provided that no rule or regulation shall be made by the licensing agency which would discriminate against any practitioner of the healing art who is licensed to practice in the state but authorized the directors of institutions licensed pursuant to the act to select the professional staff members of such institution and provided that no rules, regulations or standards of the licensing agency shall be valid if they interfere with such selection. The Montana law provided that no person operating a hospital shall in any manner or by any device discriminate between the patients of any regularly licensed physician for or on any ground or reason whatever, including the fact that any such physician is not a member of the medical or surgical or other staff, clinic or internal instrumentality of the hospital. The New Hampshire law provided that no rule, regulations or standards shall be adopted or enforced which would have the effect of denying a license to a hospital solely by reason of the school or system of practice employed or permitted to be employed by physicians therein, provided that such school or system of practice is recognized by the laws of this state. A California law [114] amended the health and safety code by providing for the licensing, inspecting and regulating of public and private establishments which render to handicapped persons medical advice, diagnosis or treatment, physiotherapy, any form of muscle training, massage, etc. Michigan [115] and Virginia [116] enacted laws requiring the licensing of hospitals caring for mentally diseased persons and for insane, epileptic or feeble-minded persons or persons addicted to the intemperate use of narcotic drugs, alcohol or other stimulants. Idaho [117] repealed and North Dakota [118] enacted a law requiring the licensing of maternity homes, the North Dakota law also requiring that every birth occurring in such home shall be attended by a legally qualified physician, if available, otherwise by a registered nurse until the services of a legally qualified physician can be obtained. Indiana,[119] Iowa,[120] Montana,[121] New Jersey [122] and Wisconsin [123] enacted laws requiring the licensing of nursing homes. The Iowa, Montana and Wisconsin laws included the regulation of homes for the aged and the New Jersey law included the regulation of private hospitals. A Vermont law [124] required all sanatoriums, rest homes, nursing homes, homes for the reception of children and related institutions to be open at all times for inspection by the Department of Social Welfare and provided for a fine for any failure to allow such inspection.

105. N. H., Laws, 1947, c. 216.
106. N. C., Laws, 1947, c. 933.
107. N. D., Laws, 1947, c. 200.
108. Ore., Laws, 1947, c. 488.
109. S. C., Acts, 1947, Gov. Act 511.
110. Tenn., Public Acts, 1947, c. 13.
111. Utah, Laws, 1947, c. 51.
112. Va., Laws, 1947, c. 15.
113. W. Va., Laws, 1947, c. 129.
114. Calif., Laws, 1947, c. 1486.
115. Mich., Acts, 1947, Public Act 106.
116. Va., Laws, 1947, c. 16.
117. Idaho, Laws, 1947, c. 132.
118. N. D., Laws, 1947, c. 316.
119. Ind., Laws, 1947, c. 172.
120. Iowa, Laws, 1947, c. 92.
121. Mont., Laws, 1947, c. 192.
122. N. J., Laws, 1947, c. 340.
123. Wis., Laws, 1947, c. 397.
124. Vt., Laws, 1947, c.——, approved April 26, introduced at H. 317.

Liens.—A Connecticut law [125] amended the law relating to the payment of bills in connection with cases involving damages for injuries resulting in death so as to provide for the payment of "all expenses of last illness" rather than merely "doctors' expenses." A New Jersey law [126] amended the law creating a lien in favor of state and county institutions rendering hospital care by permitting the hospital to file a lien in the nature of a running account so that new liens need not be filed each time new services are rendered.

Records.—A Massachusetts law [127] which was enacted last year but too late to be included in the 1946 survey provided for the admissibility in evidence of copies of hospital records of other states. A New York law [128] amended the civil practice act by allowing admission in evidence of a hospital bill bearing a certification by the superintendent or other head of the hospital that the bill is correct, that each of the items shown was necessarily furnished and that the charge is fair and reasonable. A bill so admitted is prima facie evidence of the facts stated, subject to rebuttal by any party affected thereby.

Staff and Management.—A Florida law [129] authorized the superintendent of the Florida State Hospital, when unable to obtain necessary medical personnel from within the state, to employ competent, experienced medical personnel from outside of the state of Florida and provided that personnel so employed shall be exempt from existing requirements of law as to time of residence in the state and also as to requirements relating to the passing of an examination in the basic sciences. A Minnesota law [130] provided that no person shall act as a superintendent or administrative head of a hospital or sanatorium without first registering with the state board of health.

Municipal Hospitals.—An Illinois law [131] created municipal or multimunicipal corporations to be known as Hospital Authorities to construct and operate hospitals within the corporate limits.

County Hospitals.—An Alabama law [132] authorized counties to levy a tax for the purpose of acquiring, constructing, operating, equipping or maintaining county or other public hospitals and public health facilities.

District Hospitals.—A California law [133] amended the health and safety code by authorizing the board of directors of a hospital district to contract with a physician and surgeon for the rendering of professional services in the hospital on such basis as does not result in any profit or gain to the district from the professional services of such physician and surgeon. A Washington law [134] amended the law relating to public hospital districts by authorizing such districts to be established within the several counties of the state.

Insane — Psychiatric — Psychopathic. — A Missouri law,[135] enacted last year but too late to be included in the 1946 survey, authorized certain state hospitals to give treatments, or injections of serum, to citizens of the state suffering from nervous or mental diseases but not needing hospitalization.

Miscellaneous.—A Washington law [136] authorized county and other governmental hospitals to be a member of and maintain membership in any local, state or national group or association organized and operated for the promotion of the public health and welfare or the advancement of the efficiency of hospital administration and in connection therewith to use tax funds for the payment of dues and fees.

V. REGULATION OF HEALING ARTS PRACTICE

Annual Registration.—Indiana [137] and Tennessee [138] enacted legislation requiring the annual registration of all persons holding licenses to practice the healing art. One Missouri law [139]

125. Conn., Acts, 1947, Public Act No. 30.
126. N. J., Laws, 1947, c. 274.
127. Mass., Laws, 1946, c. 473.
128. N. Y., Laws, 1947, c. 523.
129. Fla., Laws, 1947, c.——, approved May 15, introduced as S. 245.
130. Minn., Laws, 1947, c. 240.
131. Ill., Laws, 1947, c.——, approved July 23, introduced as S. 221.
132. Ala., Laws, 1947, Gov. Act 357.
133. Calif., Laws, 1947, c. 884.
134. Wash., Laws, 1947, c. 225.
135. Mo., Laws, 1946, c.——, approved July 3, introduced as H. 622.
136. Wash., Laws, 1947, c. 228.
137. Ind., Laws, 1947, c. 254.
138. Tenn., Public Acts, 1947, c. 9.
139. Mo., Laws, 1947, c.——, approved May 6, introduced at S. 117.

amended the medical practice act by requiring the biennial registration of all physicians in the state, and another Missouri law [140] required the annual registration of all persons licensed to practice osteopathy. The latter law required, also, that at the time of such annual registration the applicant must present evidence that he has attended at least one of the two day educational programs conducted by the Missouri Association of Osteopathic Physicians and Surgeons, or its equivalent, during the prior year. Orgeon [141] increased the annual registration fee for physician from $5 to $10.

Basic Science Laws.—A South Dakota law [142] amended the existing basic science act by exempting therefrom any one who has served as a medical officer in World War II.

Central Licensing Agency.—A Connecticut law [143] created a division of professional and vocational licensing to include, among others, the state board of healing arts, the medical examining board, the board of osteopathic registration, the board of chiropractic examiners and the board of naturopathic examiners. A Tennessee law [144] created a state licensing board for the healing arts and defined healing art as "offering or undertaking to diagnose, treat, operate on, or prescribe for any human pain, injury, disease, deformity, or physical or mental condition." A person desiring to practice any specific branch of the healing art in Tennessee will now be required to obtain a license from this board after the applicant has passed the specific examination required of the specific examining board in the state.

Chiropractors.—A number of states enacted laws relating to the practice of chiropractic but no new chiropractic examining boards were created. Missouri, Oklahoma and Oregon enacted amendments relative to annual registration. The Oklahoma law [145] amended the chiropractic act by requiring, as a condition for annual renewal of a license, that the applicant present satisfactory evidence that he has attended a two day educational postgraduate program during the prior year or that he was unavoidably prevented by sickness or otherwise from attending such program. The Oregon law [146] amended the chiropractic act by increasing the annual registration fee from $5 to $10 and also requiring that at the time of applying for such annual license the applicant must show that he has attended a three day educational program provided annually by the Oregon Association of Chiropractic Physicians. The Missouri law [147] merely changed the annual registration date to read July 1 of each year. North Dakota [148] and South Dakota [149] enacted legislation requiring the licensing of chiropractic hospitals by the board of chiropractic examiners. A 1946 California law,[150] enacted too late to be included in the 1946 survey, resolved that the Assembly Committee on Governmental Efficiency and Economy investigate the efficiency of the administration of the State Board of Chiropractic Examiners, particularly with respect to the compliance by said board with legal requirements for the admission of applicants to practice chiropractic. Another California law [151] authorized, among other things, the state board of chiropractic examiners to approve chiropractic schools and colleges whose graduates may apply for licenses in the state and to set forth certain requirements which schools must meet in order to be eligible for such approval. A Connecticut law [152] required applicants for certification without examination to be graduates of approved schools, to meet the requirements of the state board of healing arts and to have three years of practice in the state in which they are licensed immediately prior to an application for a Connecticut license, except that persons discharged from the armed forces may have had three years of practice immediately prior to their induction. One Wisconsin law [153] amended the chiropractic act by defining a chiropractor as a person holding a license issued by the state board of examiners in chiropractic; and another [154] amended the same act by requiring chiropractic applicants to have graduated from a school of chiropractic approved and recognized by the board of examiners.

Massage.—A Florida law [155] redefined the meaning of the practice of massage to include the right to use electrical apparatus.

Midwives.—A New York law [156] amended the law relating to the practice of midwifery by providing that as a condition to annual renewal of a license an applicant must submit evidence that she has attended and conducted one or more deliveries during the preceding twelve months.

Naturopathy.—In spite of the many proposals that were introduced throughout the country relative to the practice of naturopathy, only a few were enacted and those few may be definitely said to be unfavorable to naturopathic practitioners. In Connecticut,[157] for example, the provisions of the naturopathic practice act relating to licensure without examination were suspended until the adjournment of the 1947 session. Later in the session another law [158] went one step further and repealed the provision of the naturopathic practice act relating to the granting of licenses without examination. South Carolina [159] provided for the appointment of a commission to make a full investigation of the practices of the board of naturopathic examiners in the state in the matter of issuance of licenses, the examinations and personal qualifications required of applicants to practice naturopathy in the state and the propriety of granting licenses therefor. Tennessee [160] went further than any other state. It repealed in toto the naturopathic practice act and provided that it is unlawful for any person, whether heretofore licensed or not, to practice naturopathy in the state of Tennessee.

Osteopathy.—South Carolina and Vermont passed laws which granted additional rights to osteopaths. The South Carolina law [161] authorized osteopaths to certify birth and death certificates in the same manner as is now prescribed for other physicians, and the Vermont law [162] authorized such practitioners to issue certificates relative to the commitment of insane persons and provided that such reports and certificates shall be accepted equally with the reports and certificates of physicians of other schools of medicine. Three laws were enacted which relate to professional education and internship requirements. A Connecticut law [163] provided higher minimum requirements and a more rigid supervision of the professional practice of osteopathy in the state. A Pennsylvania law [164] amended the osteopathic practice act by extending until June 30, 1948 the requirement of a nine months' internship prior to examination. A Wisconsin law [165] required osteopathic applicants to have completed at least 12 months' internship in a reputable osteopathic hospital. An Oregon law [166] increased the examination fee from $10 to $25, the annual registration fee from $5 to $10. A California law [167] exempted from the provisions of the osteopathic practice act persons holding drugless practitioner's certificates issued by the board of osteopathic examiners. A New Mexico law [168] provided, among other things, that if the presence of an osteopathic physician on the staff of any tax-supported hospital does, under federal law or regulation, prevent such hospital from receiving any federal funds, the governing authority of such hospital has the power to remove such osteopathic physician from the staff.

Physical Therapy.—Two laws were enacted relative to physical therapy. A Maryland law [169] provided for the creation of a state board of physical therapy examiners and defined physical

140. Mo., Laws, 1947, c.——, approved May 6, introduced at S. 121.
141. Ore., Laws, 1947, c. 117.
142. S. D., Laws, 1947, c. 127.
143. Conn., Acts, 1947, Public Act No. 448.
144. Tenn., Public Acts, 1947, c. 9.
145. Okla., Laws, 1947, c.——, approved March 17, introduced as H. 51.
146. Ore., Laws, 1947, c. 127.
147. Mo., Laws, 1947, c.——, approved May 16, introduced at S. 111.
148. N. D., Laws, 1947, c. 296.
149. S. D., Laws, 1947, c. 130.
150. Calif., Laws, 1946, c.——, adopted July 23, introduced as A.R. 16-XX.
151. Calif., Laws, 1947, c. 151.
152. Conn., Acts, 1947, Public Act No. 413.
153. Wis., Laws, 1947, c. 167.
154. Wis., Laws, 1947, c. 428.
155. Fla., Laws, 1947, c.——, law without approval May 26, introduced as S. 151.
156. N. Y., Laws, 1947, c. 84.
157. Conn., Acts, 1947, Public Act No. 104.
158. Conn., Acts, 1947, Public Act No. 421.
159. S. C., Acts, 1947, c.——, adopted April 30, introduced at H. 761.
160. Tenn., Public Acts, 1947, c. 2.
161. S. C., Acts, 1947, Gov. Act 399.
162. Vt., Laws, 1947, c.——, approved April 16, introduced as S. 38.
163. Conn., Acts, 1947, Public Act No. 406.
164. Pa., Acts, 1947, Act No. 73.
165. Wis., Laws, 1947, c. 209.
166. Ore., Laws, 1947, c. 168.
167. Calif., Laws, 1947, c. 518.
168. N. Mex., Laws, 1947, c. 117.
169. Md., Laws, 1947, c. 906.

therapy as "the treatment of human injuries, diseases, or disabilities by means of the healing properties of exercise, massage, ultra-violet rays, mechanical devices, heat, cold, air, light, water, and electricity, but not by means of Roentgen rays, radium, surgery or drugs." Among other things, this law also stated that a physical therapist is one who treats only patients diagnosed and referred by licensed medical doctors. A Tennessee law [170] authorized the city of Knoxville to license and regulate the practice of physical therapy.

Electrologists and Hospital Attendants.—An Oklahoma law [171] provided for the creation of a board of examiners of electrology, and a California law [172] repealed the existing law relating to the examination and licensure of trained hospital attendants.

Acts Constituting the Practice of Medicine.—A California law [173] restricted the use of the word "physician" to a person licensed as a physician and surgeon under the provisions of the business and professions code.

Educational Qualifications.—A California law [174] amended the business and professions code so as to define the term "resident course of instruction" as classroom, laboratory, practical and clinical instruction, received and given the person physically present for the period prescribed. A Massachusetts law [175] provided that any person who was a resident of the commonwealth for a five year period prior to July 1, 1941, who matriculated at any medical school in the commonwealth prior to said date and who since that time received a degree of doctor of medicine from such school shall be eligible to apply for registration as a qualified physician, shall be examined by the board of registration in medicine and shall be subject to all the provisions of the law relating to such eligibility and examination. An Ohio law,[176] enacted during 1946 but too late to be included in the 1946 survey, authorized the state medical board to waive the provisions of section 1270 of the medical practice act in the case of a physician and surgeon who cannot meet the requirements of such section but who served as a commissioned medical officer of the army or navy or public health service between Oct. 14, 1940 and Sept. 2, 1945 and received an honorable discharge therefrom. This waiver may be made at any time during a four year period beginning with the effective date of the act. Under this law the board may issue certificates to practice medicine and surgery to applicants who apply within two years from the time of separation from service, meet the requirements of section 1269 of the medical practice act, hold a certificate to practice medicine in some other state if a graduate of an approved medical school, pass the necessary examinations to practice medicine and surgery in Ohio if a graduate of an approved school but not authorized to practice in some other state, or pass the examination for a certificate to practice medicine in Ohio if a graduate of an unapproved school, a legal resident of Ohio for at least one year preceding the date of the act and have submitted evidence that they have taken postgraduate instruction or intern service amounting in the aggregate to thirty-six weeks in an institution or hospital approved by the board.

Internship.—A Pennsylvania law [177] amended the medical practice act by repealing the 1943 law which reduced for a limited period of time the training period of medical internship in hospitals.

Examinations.—An Indiana law [178] authorized the board of medical examiners to grade questions given by the national board of medical examiners and to accept examinations certified by the national board as the examination given to the applicant. This enables an applicant to be licensed in Indiana without having to wait until the regular examination given by the Indiana board. A Washington law [179] provided that any person taking a written examination prescribed or authorized by law for a license to practice any trade, occupation or profession who, because of a handicap, is unable to write the examination himself, may dictate it to, and have it written by or typed by, another for him.

Graduates of Foreign Medical Schools.—A New Jersey law [180] amended the medical practice act by granting the same recognition to Canadian and Newfoundland medical schools as is granted to medical schools of the United States.

Licensure Without Examination: Reciprocity.—A Connecticut law [181] provided that applicants for reciprocity on the basis of licensure in some other state or on the basis of a diploma from the National Board of Medical Examiners must still obtain certification from the state board of healing arts before being entitled to a reciprocity certificate.

Revocation, Suspension, Refusal or Restriction of Licenses.—Three laws were enacted in California relating to causes for the revocation of a license. One [182] of these made conviction of a violation of the Harrison Narcotic Act or any of the state narcotic or dangerous drugs statutes an act of unprofessional conduct; another [183] made the mere violation of the state narcotic or dangerous drugs acts an act of unprofessional conduct; the third [184] made it an act of unprofessional conduct for a practitioner to administer to himself cocaine, opium, morphine, codeine, heroin, alpha eucaine, beta eucaine, chloral hydrate, paraldehyde or barbituric acid, any of the narcotics, or alcoholic beverages to an extent which is injurious to his practice. A New York law [185] amended the revocation provisions of the medical practice act by providing that nothing should prohibit physicians from practicing medicine as partners or in groups or from pooling fees and monies received either by the partnerships or groups or by the individual members thereof for professional services furnished by any individual physician, member or employee of such partnership or group, nor shall the physicians constituting the partnerships or groups be prohibited from sharing, dividing or apportioning the fees and monies received by them or by the partnership or group in accordance with a partnership or other agreement. A California law [186] authorized the board to grant or deny a petition for restoration of a license without a hearing when a hearing had been held before the board on the original application within a period of two years.

Temporary Licenses.—A Nevada law [187] authorized the state board of medical examiners, in its discretion, to issue permits to any properly qualified applicant to serve as resident medical officer in any hospital in Nevada subject to certain provisions. Such temporary licentiate shall be authorized to practice medicine only within the confines of the hospital specified in his permit and the permit would in no case be in excess of one year, renewable at the discretion of the board of medical examiners. A Pennsylvania law [188] repealed the 1943 law authorizing the issuance of temporary permits to practice medicine under certain conditions.

Veterans.—A South Dakota law [189] provided that any person who served in World War II and received an honorable discharge therefrom, and who at the time of induction was a regularly licensed practitioner of a profession in the state, and whose status as such practitioner was lost during the time he was in service, shall be restored and reinstated to the status held at the time of his induction without requiring him to submit to any examination therefor.

Injunctive Process.—A New Mexico law [190] authorized the use of the injunctive process to prohibit the illegal practice of medicine or the healing arts.

Exemptions to Medical Practice Acts.—Maryland [191] and West Virginia [192] enacted laws which exempt Christian scientists from the provisions of the medical practice acts of those states.

170. Tenn., Private Acts, 1947, c. 760.
171. Okla., Laws, 1947, c.——, approved May 21, introduced as H. 309.
172. Calif., Laws, 1947, c. 234.
173. Calif., Laws, 1947, c. 1005.
174. Calif., Laws, 1947, c. 300.
175. Mass., Laws, 1947, c. 369.
176. Ohio, Laws, 1946, c.——, approved August 28, introduced as S. 368-XXXX.
177. Pa., Acts, 1947, Act No. 72.
178. Ind., Laws, 1947, c. 253.
179. Wash., Laws, 1947, c. 143.
180. N. J., Laws, 1947, c. 243.
181. Conn., Acts, 1947, Public Act No. 391.
182. Calif., Laws, 1947, c. 1157.
183. Calif., Laws, 1947, c. 309.
184. Calif., Laws, 1947, c. 308.
185. N. Y., Laws, 1947, c. 722.
186. Calif., Laws, 1947, c. 470.
187. Nev., Laws, 1947, c. 98.
188. Pa., Acts, 1947, Act No. 74.
189. S. D., Laws, 1947, c. 187.
190. N. Mex., Laws, 1947, c. 101.
191. Md., Laws, 1947, c. 185.
192. W. Va., Laws, 1947, c. 123.

A New York law [193] amended the exemption section of the medical practice act by providing that the terms of the act should not prevent a corporation organized under article 9 of the insurance law from employing duly licensed physicians or from entering into contracts with duly licensed physicians or with partnerships or groups of duly licensed physicians to practice medicine on its behalf for persons insured under its contracts or policies.

Interns and Resident Physicians.—A California law [194] amended the business and professions code by authorizing licentiates of other states to act as resident or assistant resident physicians and surgeons in state hospitals for a period of not exceeding one year under certain circumstances. A Minnesota law [195] provided that any student nurse, medical student or medical intern who contracts tuberculosis as a result of direct contact with tuberculosis patients during the course of his or her training or internship in a public tax-supported hospital may be given care and treatment at the expense of the county in which such public hospital is located.

Crimes and Misdemeanors Connected with Healing Arts.—An Oklahoma law [196] made it a misdemeanor for any person to use the word "doctor" or to hold himself out as qualifying to engage in the practice of any of the healing arts without holding an unrevoked license or certificate issued by the laws of the state authorizing the person to practice the healing art covered by the license.

Miscellaneous.—A Connecticut law [197] amended the charter of the Connecticut Medical Society by changing the name from the Connecticut State Medical Society to the Connecticut Medical Society and by eliminating the limit of $100,000 as the value of real and personal estate which the society may purchase, receive, hold or convey. An Iowa law [198] provided that any person who, during the entire period for which a license fee was imposed, had served in the armed forces of the United States during World War II and who had been honorably discharged therefrom, should be refunded the amount of such fee. North Carolina law [199] provided for the appointment of a commission for the special purpose of studying and investigating the administration of the various examining boards in the state.

VI. RIGHTS AND PRIVILEGES—DUTIES AND LIABILITIES—OF PRACTITIONERS

Practice in Hospitals.—A Missouri law,[200] enacted during 1946 but too late to be included in the 1946 survey, provided for the construction and equipping of county hospitals and health centers and provided that any such county hospital or health center constructed under the provisions of this proposal must grant equal rights therein to each school of healing licensed by the state of Missouri.

Exemption from Taxation.—A California law [201] provided that licensed optometrists, physicians and surgeons are consumers and not retailers of ophthalmic materials. A Missouri law [202] amended the sales tax act by providing that purchases of tangible personal property by duly licensed physicians, dentists and veterinarians and for use in the practice of their profession shall be deemed to be purchases for use or consumption and not for resale.

Expert Witnesses.—A Pennsylvania law [203] authorized the superintendent or any physician or psychiatrist of a state mental hospital to testify in court by deposition rather than by having to appear personally—unless the court specifically directs that he appear in person.

Special Privilege—Office or Actions Which Must Be Held or Performed by Physicians.—Arizona, Iowa and Montana enacted laws setting forth the requirements of superintendents of state hospitals. The Arizona law [204] provided that the superintendent of a state hospital for the insane shall be a physician with not less than three years' experience in the treatment of mental and nervous diseases. The Iowa law [205] provided that the director of mental institutions shall be a reputable physician admitted to practice in Iowa and a psychiatrist with at least five years' actual experience in the care and treatment of persons afflicted with mental diseases. A Montana law [206] required the superintendent and assistant superintendent of the Montana State Hospital to be competent and qualified physicians. A Connecticut law [207] provided that persons must present a certificate signed by a physician licensed to practice medicine or surgery in Connecticut before being admitted as a patient in a state mental hospital. A Florida law [208] amended the law relating to the membership of the state board of health by authorizing other than a doctor of medicine to be a member thereof, that is, "a licensed practitioner under the laws of the state of Florida of one of the healing arts for the treatment of human ills other than a doctor of medicine." An Indiana law [209] amended the law relating to county health officers by providing that executive officers of a city health department shall be physicians holding a doctor of medicine degree, licensed or eligible for licensure to practice medicine in the state. A New Jersey law [210] required the superintendent of a county hospital to be a physician or member of a medical staff of the institution. A New Mexico law [211] provided that the director of public health shall be a person having a degree of doctor of medicine and licensed or eligible for licensure in the state of New Mexico, and fixed the director's salary at not to exceed $6,000 per year. A New York law [212] eliminated from the education law the provision requiring that examination, treatment and care furnished to teachers, janitors or other persons need be by a physician duly licensed.

Advertising.—An Oklahoma law [213] prohibited advertising of prices by any professional group within the state.

Autopsies—Physician's Liability.—A Texas law [214] provided, among other things, that any physician duly licensed under the laws of Texas to practice medicine who, when an autopsy is ordered by a justice of the peace, performs the examination in good faith in the belief that the order of the autopsy is a valid order, shall not be held liable for damages in the event it should be determined that the order of autopsy made by the justice of the peace was for any reason invalid.

Designation of School of Practice.—A New Mexico law [215] required all persons licensed to practice any of the healing arts to clearly designate the school of medicine or practice which such person is licensed to engage in and provided further that failure to comply with such restriction constitutes unprofessional conduct. An Oklahoma law [216] required various practitioners of the healing art to list descriptive letters after their names in order to designate the branch of practice in which they engage.

Emergency Treatment.—An Illinois law [217] granted an appropriation for establishing and maintaining a first aid station in the state capitol. A New York law [218] extended until July 1, 1948 a prior law authorizing physicians who are public officers or employees to render emergency medical service to recipients of public assistance.

Limitation on Fees.—A California law [219] and two Massachusetts laws [220] increased the statutory examination fee for

193. N. Y., Laws, 1947, c. 721.
194. Calif., Laws, 1947, c. 867.
195. Minn., Laws, 1947, c. 569.
196. Okla., Laws, 1947, c.——, approved May 22, introduced as H. 278.
197. Conn., Acts, 1947, Special Act 120.
198. Iowa, Laws, 1947, c. 45.
199. N. C., Laws, 1947, c.——, ratified April 5, introduced as H.R. 703.
200. Mo., Laws, 1946, c. Resolution C. 31.
201. Calif., Laws, 1947, c. 139.
202. Mo., Laws, 1947, c.——, approved July 9, introduced as S. 157.
203. Pa., Acts, 1947, Act No. 126.
204. Ariz., Laws, 1947, c. 82.
205. Iowa, Laws, 1947, c. 116.
206. Mont., Laws, 1947, c. 268.
207. Conn., Acts, 1947, Public Act No. 254.
208. Fla., Laws, 1947, c.——, law without approval June 16, introduced as H. 312.
209. Ind., Laws, 1947, c. 282.
210. N. J., Laws, 1947, c. 254.
211. N. Mex., Laws, 1947, c. 136.
212. N. Y., Laws, 1947, c. 839.
213. Okla., Laws, 1947, c.——, approved May 5, introduced as H. 226.
214. Texas, Laws, 1947, c. 369.
215. N. Mex., Laws, 1947, c. 52.
216. Okla., Laws, 1947, c.——, approved March 13, introduced as H. 159.
217. Ill., Laws, 1947, c.——, approved June 25, introduced as H. 366.
218. N. Y., Laws, 1947, c. 305.
219. Calif., Laws, 1947, c. 1043.
220. Mass., Laws, 1947, c. 194; c. 459.

physicians making mental examinations and written reports thereon for a court.

Occupational Taxes.—A Florida law [221] made it unlawful for tax collectors in the several counties to issue state and county occupational licenses to any person applying for a license to practice medicine in any of its branches unless and until proof of current qualification and competency, as established by a certificate or license issued by the state boards duly constituted and legally authorized to determine qualification and competency, be exhibited at the time of making such application. Three Florida laws [222] authorized the cities of Miami Springs, Titusville and Crescent City, respectively, to levy taxes on all professions practiced within the city.

Reports of Wounds, Diseases and Defects.—California and Colorado enacted laws relating to venereal disease. The California law [223] created a bureau of venereal diseases to have charge of the prevention and control of venereal diseases in the state. The Colorado law [224] made it the duty of every physician discovering the existence of a venereal disease during the course of an examination to instruct such person in measures for preventing the spread of the disease and further provided that no person shall sell or dispense a drug, medicine, remedy or preparation for the treatment, relief or cure of a venereal disease except on the original written prescription of a duly licensed physician. Indiana,[225] Oregon [226] and Wisconsin [227] made it the duty of all physicians to immediately report cases of epilepsy or similar disorders characterized by lapses of consciousness to the state board of health or local health officer. A Delaware law [228] required every health and social agency, attending or consulting physician or nurse to report to the Delaware Commission for the Blind the name, age and residence of persons who are blind. An Idaho law [229] added cancer to the list of diseases which a physician must immediately report to the department of public health. A North Dakota law [230] provided that all hospitals and legally qualified physicians shall report to the division of child welfare all births with a visible congenital deformity. A West Virginia law [231] provided, among other things, that every physician practicing in the state shall report in writing to the board of control the name, age, sex, race, home address and type of disease of every person having tuberculosis who comes under his observation or care, within forty-eight hours after the discovery of this condition. A Wisconsin law [232] required all physicians and hospital authorities to report deaths, homicides, suicides, etc., to the sheriff, police officer or coroner of the county where such death takes place.

VII. MEDICAL, DENTAL AND HOSPITAL SERVICE AND INSURANCE PLANS

Accident and Sickness Insurance.—A New Hampshire law [233] amended the law relating to group accident and health insurance policies by providing that benefits thereunder may be paid directly to the hospital, physician, surgeon, doctor, nurse or other person furnishing services covered by the provisions of the policy.

Health Cooperatives.—A Wisconsin law [234] authorized the organization of cooperative associations, without capital stock, to establish and operate in the state or any county therein a nonprofit plan for sickness care, including hospital care, for their members and their dependents through contracts with physicians, medical societies, dentists, dental societies, hospitals and others. Any person covered by such plan shall be free to choose for sickness care any medical or osteopathic physician or dentist licensed to practice in Wisconsin who has agreed to participate in such plan and abide by its terms.

Hospital Service Plans.—Laws relating to hospital service plans were enacted in New Mexico, Washington and West Virginia. The New Mexico law [235] set forth regulations relating to the organization, control and administration of domestic benevolent societies, associations or cooperative organizations which maintain a system of death, accident, medical or hospital benefits. The Washington law [236] provided that a corporation organized as a charitable or nonprofit corporation to render health care services shall not be subject to the laws relating to insurance. The West Virginia law [237] amended the law relating to medical and hospital service corporations by authorizing such corporations to promote and encourage reciprocity with similar plans both within and without the state.

Medical Service Plans.—Idaho, Montana and New Mexico enacted laws looking toward the establishment of prepaid medical care plans. The Idaho law [238] was an enabling act for the formation and regulation of nonprofit corporations organized to render medical, surgical and/or hospital service on a membership fee plan. The Montana law [239] amended the law relating to nonprofit corporations by specifically authorizing the organization of corporations for the purpose of defraying or assuming the cost of professional services, including services rendered by doctors of medicine, or other professional licentiates recognized by the laws of the state of Montana, and/or services rendered by hospitals, or health centers, clinics or sanatoriums, or acting as agent, representative or factor of such licentiates or hospitals. The New Mexico law [240] was similar to the Idaho one in that it was an enabling act for the formation and regulation of physicians' service plans. One Illinois law [241] authorized nonprofit hospital service corporations to act as agents for medical service plan corporations and another [242] authorized medical service plan corporations to appoint nonprofit hospital service plan corporations to act as their agent in the solicitation of subscribers. A Vermont law,[243] enacted during 1946 but too late to be included in the 1946 survey, authorized nonprofit medical service plans incorporated in other states to do business in Vermont if such other state grants like privileges to plans incorporated in Vermont. Two New Hampshire laws also contemplated better cooperation with plans organized in other states. One [244] authorized the members of the board of trustees or directors of the medical service corporations in the state to be members of the Vermont Medical Society and residents of Vermont. The other [245] authorized agents of local medical service corporation to be nonresidents of the state. Finally, a North Carolina law [246] provided general amendments to the statutes relative to nonprofit hospital and medical service corporations.

Governmental Assistance for Medical and Hospital Care to Afflicted Children.—A New Jersey law [247] provided for the creation of a Child Treatment Center for children who are seriously maladjusted or have nervous or mental disorders requiring observations, care and treatment. Voluntary admission to such center may be had on application by the parent or guardian of the child and on certification by two reputable physicians indicating the need therefor.

Government Assistance for Medical and Hospital Care to County Employées.—A Nevada law [248] authorized the governing bodies of certain political subdivisions of the state to adopt a system of group life, health and accident insurance and health services for the benefit of officers and employees thereof. The law required such system to be open to participation by all licentiates of the particular class (whether doctors of medicine,

221. Fla., Laws, 1947, c.——, law without approval June 16, introduced as H. 440.
222. Fla., Laws, 1947, c.——, law without approval May 22, introduced as S. 310; c.——, law without approval June 16, introduced as H. 992; c.——, law without approval June 16, introduced as H. 1027.
223. Calif., Laws, 1947, c. 765.
224. Colo., Laws, 1947, c. 209.
225. Ind., Laws, 1947, c. 9.
226. Ore., Laws, 1947, c. 133.
227. Wis., Laws, 1947, c. 132.
228. Del., Laws, 1947, c. 88.
229. Idaho, Laws, 1947, c. 167.
230. N. D., Laws, 1947, c. 315.
231. W. Va., Laws, 1947, c. 147.
232. Wis., Laws, 1947, c. 269.
233. N. H., Laws, 1947, c. 141.
234. Wis., Laws, 1947, c. 408.
235. N. Mex., Laws, 1947, c. 55.
236. Wash., Laws, 1947, c. 268.
237. W. Va., Laws, 1947, c. 40.
238. Idaho, Laws, 1947, c. 271.
239. Mont., Laws, 1947, c. 283.
240. N. Mex., Laws, 1947, c. 157.
241. Ill., Laws, 1947, c.——, approved August 8, introduced as H. 791.
242. Ill., Laws, 1947, c.——, approved August 8, introduced as H. 792.
243. Vt., Laws, 1946, c.——, approved September 28, introduced as S 1-X.
244. N. H., Laws, 1947, c. 55.
245. N. H., Laws, 1947, c. 17.
246. N. C., Laws, 1947, c. 820.
247. N. J., Laws, 1947, c. 252.
248. Nev., Laws, 1947, c. 27.

V 1
194

doctors of osteopathy or doctors of chiropractic) offering services through a nonprofit membership corporation.

Governmental Assistance for Medical and Hospital Care to State Employees.—An Indiana law [249] authorized the state or counties within the state which have a responsibility for the furnishing of medical, surgical or hospital care to its employees to contract concerning the same.

Governmental Assistance for Medical and Hospital Care to the Insane.—An Iowa law [250] authorized admission to the state hospital on application of a person's attending physician and another physician experienced in the treatment of mental diseases. A Massachusetts law,[251] enacted during 1946 but too late to be included in the 1946 survey, provided that no person shall be committed to a department for the care and treatment of drug addicts unless there has been filed with the judge a certificate by two qualified physicians to the effect that such person is addicted to the intemperate use of stimulants or narcotics. A West Virginia law [252] authorized voluntary commitments to the state hospital on the certificate of a licensed physician on the basis of an examination which such physician has made within twenty-four hours. A Wisconsin law [253] authorized any county, town, city or village to establish and maintain a mental health clinic and employ psychiatrists, clinical psychologists, psychiatric social workers and others necessary to meet the county or municipal needs in providing a mental health program. An Indiana law [254] created an Indiana Council for Mental Health, among other things, to prescribe by rule or regulation classification of state psychiatric personnel and to prescribe the minimum qualifications for employment in each classification. A Wisconsin law [255] amended the law relating to the mentally infirm and mentally deficient persons, epileptics, inebriates and drug addicts by defining the term "examining physician" as one who is entitled to use the designation M.D.

Governmental Assistance for Medical and Hospital Care—Miscellaneous.—An Ohio law [256] authorized municipalities inaccessible from the mainland to appoint a resident physician to act as municipal physician and to pay $3,000 per annum to defray the cost of the services performed by such physician.

Hospital Construction Programs—Federal Plans.—An Indiana law [257] amended the law relating to hospital surveys by appointing the state board of health as the state agency to cooperate with the federal government in the construction of hospitals within the state. The law also added to the hospital survey law a new section which defines the terms "hospital," "public health center" and "nonprofit hospital."

Hospital Construction Programs—State Plans.—An Alabama law [258] provided for the establishment of an advisory council to consult with the state board of health in planning for, acquiring, constructing, equipping, maintaining and supervising hospitals, health centers and related facilities for the treatment of disease. One Illinois law [259] was a hospital construction act and authorized the director of the state department of public health to direct the hospital construction program in the state. Another Illinois law [260] made it a misdemeanor for any hospital receiving federal aid in a construction program to fail to comply with the minimum standards of maintenance and operation which the state department of public health, with the assistance of the advisory hospital council, shall promulgate.

VIII. WORKMEN'S COMPENSATION AND OCCUPATIONAL DISEASE LEGISLATION

Choice of Practitioner—Dentists.—A California law [261] amended the labor code by providing that the word "physicians" as used in such code should include dentists licensed by the state law and practicing within the scope of their practice.

Conditions Compensable—Occupational Diseases.—Six states enacted legislation providing for the payment of compensation to workmen injured through the contracting of occupational diseases. Iowa [262] enacted an Iowa Occupational Disease Law which specified a number of compensable diseases. Persons contracting such diseases would be paid for partial disability if the partial disability was not less than 33⅓ per cent and for total disability and death. The law provided for the creation of a medical board to act in an advisory capacity to the industrial commissioner. Nevada [263] enacted a Nevada Occupational Disease Act which specified a number of diseases to be classed as occupational diseases. Under this act no compensation would be paid for partial disability, only for a temporary and permanent total disability and death. The New York law [264] amended the workmen's compensation act in relation to silicosis and other diseases due to dust. It provided for compensation for total disability or death (not partial disability) and provided for the appointment of medical consultants to diagnose ailments and determine causal relation and the nature and type of medical and hospital treatment required. The report of such consultants constitutes prima facie evidence of matters contained therein. The South Dakota law [265] resulted in the enactment of a South Dakota Occupational Disease Disability Law which specified the occupational diseases to be covered thereby. This law provided no compensation for partial disability, only for total disability or death. It also provided for the creation of a medical panel to be selected from a list of names submitted by the South Dakota Medical Association, the findings of the medical panel to be advisory to the Workmen's Compensation Commission. The Tennessee law [266] amended the workmen's compensation act by specifying certain diseases deemed to be occupational diseases. Compensation is paid for partial disability, total disability and death. The Texas law [267] added provisions to the workmen's compensation act providing for compensation for certain specified occupational diseases. Compensation is paid for partial and total disability and death. The law provided for the appointment of a medical committee to examine claimants and report to the board regarding all medical questions in the case. The opinion of this medical committee is advisory in nature. A Montana law [268] created a commission to make a survey of occupational diseases, with special reference to silicosis, and to report back to the next session of the legislature. A Vermont joint resolution [269] authorized the continuation of an existing committee to make a study of existing occupational disease laws and to draft a proposed occupational disease law for Vermont.

Conditions Compensable—Nursing and X-Ray.—A Connecticut law [270] amended the workmen's compensation act so as to make the employer liable for such nursing services as the physician or surgeon shall deem reasonable or necessary. A New York law [271] amended the workmen's compensation act by providing that no claim for services in connection with x-ray examination, diagnosis or treatment of a workmen's compensation claimant shall be valid or enforceable except by a laboratory or bureau of a voluntary hospital authorized and licensed under subdivision 1 of the workmen's compensation act or except by a physician duly authorized as a roentgenologist by the chairman for services performed by such physician or under his immediate supervision.

Examination of Employees.—A New Mexico law [272] amended the workmen's compensation act by authorizing an employer or insurer to be entitled to have a physical examination of any claimant by a physician of his own choice, subject to the furnishing of reports, subject to the requirement that the physician be qualified to practice medicine under the laws of this state or the

249. Ind., Laws, 1947, c. 300.
250. Iowa, Laws, 1947, c. 128.
251. Mass., Laws, 1946, c. 557.
252. W. Va., Laws, 1947, c. 100.
253. Wis., Laws, 1947, c. 4.
254. Ind., Laws, 1947, c. 235.
255. Wis., Laws, 1947, c. 485.
256. Ohio, Laws, 1947, c.——, approved June 3, introduced as H. 138.
257. Ind., Laws, 1947, c. 173.
258. Ala., Laws, 1947, Gov. Act 271.
259. Ill., Laws, 1947, c.——, approved August 8, introduced as H. 315.
260. Ill., Laws, 1947, c.——, approved August 8, introduced as H. 993.
261. Calif., Laws, 1947, c. 620.
262. Iowa, Laws, 1947, c. 71.
263. Nev., Laws, 1947, c. 44.
264. N. Y., Laws, 1947, c. 431.
265. S. D., Laws, 1947, c. 426.
266. Tenn., Public Acts, 1947, c. 139.
267. Texas, Laws, 1947, c. 113.
268. Mont., Laws, 1947, c. 242.
269. Vt., Laws, 1947, c.——, approved April 23, introduced as H.J.R. 33.
270. Conn., Acts, 1947, Public Act No. 274.
271. N. Y., Laws, 1947, c. 766.
272. N. Mex., Laws, 1947, c. 109.

state wherein the claimant resides and subject to certain other requirements.

Fees of Physician or Hospital.—A New York law [273] amended the workmen's compensation act by providing that any compensation claimant who pays a fee to a physician for medical services necessitated by an industrial accident shall have a cause of action for the recovery of the money paid.

Miscellaneous.—A Nevada law [274] repealed the existing workmen's compensation act and enacted a new law to be known as the Nevada Industrial Insurance Act.

IX. MISCELLANEOUS LEGISLATION

Ambulance Services.—A Minnesota law [275] authorized counties in the state to contract for the use of ambulance service in case of accidents occurring within the confines of the county. A Wisconsin law [276] authorized counties to purchase and equip ambulances for conveyance of the sick or injured and to make reasonable charges for such conveyance services.

Anatomical Acts.—Two rather similar laws were enacted in California. One [277] amended the health and safety code by authorizing a person, by will, to direct that the whole or any part of his remains be given to a teaching institution, university, college or legally licensed hospital, or to the state director of public health. The second [278] authorized every person of sound mind over the age of 18 years to dispose, by will, of the whole or any part of his or her body to a teaching institution, university, college or legally licensed hospital, either for use as such institution, university, college or hospital may see fit or for use as expressly designated in the will.

Animal Experimentation.—A number of proposals relating to animal experimentation (so-called antivivisection laws) were considered in the various states during the 1947 session. Only three proposals were enacted. A Michigan law [279] authorized the state commissioner of health to promulgate rules and regulations controlling the humane use of animals for the diagnosis and treatment of human and animal diseases, the advancement of veterinary, dental, medical and biologic sciences, and the testing and diagnosis, improvement and standardization of laboratory specimens, biologic products, pharmaceuticals and drugs. The law further required that no person, firm or corporation shall keep or use animals for experimental purposes unless registered to do so by the state commissioner of health. A New York law [280] required any institution desiring to conduct scientific tests and experiments on living animals to be approved for that purpose by the state commissioner of health under such rules as the commissioner shall determine. A Maine law [281] (not really an antivivisection law) provided that no person acting under authority of a state humane agent shall sell, breed or trade animals coming into his possession by reason of his office or provide or supply dealers, commercial kennels or laboratories with such animals.

Blood Plasma.—A Vermont law [282] provided an appropriation of $9,000 for the continued maintenance of the Vermont Blood Plasma Bank.

Coroners and Medical Examiners.—A California law [283] authorized a coroner to make or have made an autopsy on all bodies coming under his jurisdiction. An inquest by the coroner is now permissive rather than mandatory. Another California law [284] amended the health and safety code by authorizing a cemetery authority or a licensed funeral director to permit an autopsy of any remains in its custody on receipt of a written authorization of a person representing himself to be the surviving spouse, a surviving child or parent, a surviving brother or sister, or any other kin or person who has acquired the right to control the disposition of the remains, or the coroner or other duly authorized public officer. The law also provided that the cemetery authority or licensed funeral director is not liable for permitting or assisting in making an autopsy pursuant to such authorization unless it has actual notice that the representation in the authorization is untrue. A West Virginia law [285] amended the law relating to autopsies by providing that a coroner or justice shall not, without the consent of the prosecuting attorney, authorize an autopsy or chemical analysis on a dead body unless the justice or coroner has first obtained the consent in writing of the next of kin and the cost shall be paid by the county court on the order of the prosecuting attorney. This provision is not applicable where the prosecuting attorney reasonably believes that an unlawful act has been committed. Laws enacted in Alabama,[286] Arkansas,[287] Delaware,[288] Georgia,[289] Maine,[290] North Carolina,[291] Pennsylvania,[292] and Texas [214] increased fees of coroners, medical examiners, witnesses, etc., in certain instances. Laws enacted in Maine,[293] New Hampshire [294] and Texas [214] enlarged the scope of circumstances coming within the jurisdiction of a coroner or medical examiner as the case may be. New Jersey [295] also made certain amendments to its laws relating to reports and investigations of deaths occurring in counties having and not having county physicians or medical examiners.

Local Boards of Health or Health Districts.—New laws in Arizona,[296] Colorado,[297] Connecticut,[298] Idaho,[299] Indiana,[300] Ohio [301] and Oregon [302] permitted the formation of multiple county boards of health or boards of health representative of combinations of counties and cities within the state.

State Boards of Health.—An Arkansas law [303] created within the state board of health a division of mental hygiene and authorized such division to establish and direct necessary mental hygiene clinics and child guidance clinics throughout the state. A Colorado law [304] was a State Department of Public Health Reorganization Act whereby there was created as an administrative department in the executive branch of the government a state department of public health. A Nevada law [305] amended the law relating to the state board of health by authorizing the state department to create a division of preventive medical services, together with such other divisions, subdivisions or bureaus as are and may be necessary for the prevention of disease, the prolongation of life and the promotion of the physical health and mental efficiency of the people of the state of Nevada. A New Jersey law [306] related to the state department of health and repealed the existing law. A Wyoming law [307] resulted in the creation of a department of public health and a reorganization of the state board of health.

Health Centers.—A Delaware law [308] provided for the establishment of a state health and welfare clinic and health center chiefly for children. An Illinois law [309] authorized the creation and establishment of a medical center district in the city of Chicago and set forth the powers of the medical center commission administering such district. A Massachusetts law [310] provided an appropriation for the purpose of constructing a

273. N. Y., Laws, 1947, c. 756.
274. Nev., Laws, 1947, c. 168.
275. Minn., Laws, 1947, c. 205.
276. Wis., Laws, 1947, c. 68.
277. Calif., Laws, 1947, c. 125.
278. Calif., Laws, 1947, c. 126.
279. Mich., Acts, 1947, Public Act 241.
280. N. Y., Laws, 1947, c. 408.
281. Maine, Public Laws, 1947, c. 181.
282. Vt., Laws, 1947, c.——, approved April 1, introduced as H. 164.
283. Calif., Laws, 1947, c. 1259.
284. Calif., Laws, 1947, c. 1293.
285. W. Va., Laws, 1947, c. 60.
286. Ala., Laws, 1947, Gov. Act 291.
287. Ark., Acts, 1947, Act No. 129.
288. Del., Laws, 1947, c. 76; Laws, 1947, c. 77.
289. Ga., Acts, 1947, Gov. Act 34.
290. Maine, Public Laws, 1947, c. 190.
291. N. C., Laws, 1947, c. 52.
292. Pa., Acts, 1947, Act No. 343.
293. Maine, Public Laws, 1947, c. 190.
294. N. H., Laws, 1947, c. 212.
295. N. J., Laws, 1947, c. 403; Laws, 1947, c. 404.
296. Ariz., Laws, 1947, c. 55.
297. Colo., Laws, 1947, c. 204.
298. Conn., Acts, 1947, Public Act No. 420.
299. Idaho, Laws, 1947, c. 106.
300. Ind., Laws, 1947, c. 202, c. 271.
301. Ohio, Laws, 1947, c.——, approved June 24, introduced as H. 492.
302. Ore., Laws, 1947, c. 388.
303. Ark., Acts, 1947, Act No. 53.
304. Colo., Laws, 1947, c. 208.
305. Nev., Laws, 1947, c. 230.
306. N. J., Laws, 1947, c. 177.
307. Wyo., Laws, 1947, c. 67.
308. Del., Laws, 1947, c. 188.
309. Ill., Laws, 1947, c.——, approved July 2, introduced as S. 551.
310. Mass., Laws, 1947, c. 599.

public health clinic in Amherst. A New Mexico law [311] defined a clinic as an establishment where patients are admitted for special study and treatment by a group of physicians practicing medicine together and provided that no person or group of persons shall use the word clinic in connection with any establishment or office which does not come within such definition. A Texas law [312] provided for the establishment and maintenance of a state school for the diagnosis, care and education of persons afflicted with cerebral palsy.

Laboratories.—A Connecticut law [313] broadened the scope of activities of a bacteriologic laboratory so as to conform with those of a modern public health laboratory. A North Carolina law [314] required laboratories making serologic tests to be certified by the North Carolina State Board of Health. A Kansas law [315] provided for the establishment of an advisory laboratory commission to formulate procedures and qualifications for the registering and approving of laboratories performing serologic examinations, to formulate procedures and methods of examination and approval of persons performing serologic tests in approved laboratories and to recommend to the state board of health the adoption of the procedures and qualifications so approved. A Pennsylvania law [316] provided an appropriation for constructing and equipping a state health laboratory.

Causes for Divorce.—An Oklahoma law [317] amended the divorce law by making insanity for a period of five years a ground for divorce. The divorce would only be granted after thorough examination of such person by three physicians who are recognized authorities on mental diseases, one of whom shall be a superintendent of a state hospital for the insane.

Medical Schools.—A California law [318] gave a medical school or graduate thereof the right to a speedy hearing when an examination for a license to practice medicine has been denied because of the board's disapproval of the school which the applicant attended. A Florida law [319] authorized the city of Jacksonville to cooperate with the state of Florida in providing a suitable site for the establishment of a State College of Medicine and Dentistry in that city. A Maine law [320] created a commission to investigate and study the feasibility and desirability of establishing a medical school in the state of Maine. An Oklahoma law [321] authorized the conveyance of land on the medical college campus to the Oklahoma Medical Research Foundation for a building to be devoted to medical research. A Washington law [322] required applicants for a license to practice medicine and surgery to have graduated from a medical school accredited and approved by the Association of American Medical Colleges and the Council of Medical Education and Hospitals of the American Medical Association.

Scholarships.—A Maryland law [323] provided for the granting of free scholarships to the medical school of the University of Maryland.

Mental Health Acts.—A number of laws were enacted relating to the mental health of the inhabitants of the several states. A California law [324] amended the welfare and institutions code by providing for the appointment of counselors in mental health in every county in the state. A Connecticut law [325] designated the department of health as the agency to receive and distribute funds under the mental health act, Public Law 487 of the Seventy-Ninth Congress. An Iowa law [326] designated a mental health authority in the state, to consist of at least one practicing psychiatrist, for the purpose of directing the benefits of the federal mental health act, Public Law 487 of the Seventy-Ninth Congress. A Maryland law [327] concerned appointment of members of the board of mental hygiene and the commission of mental hygiene. A Nevada law [328] was a mental health act for the state. A New Hampshire law [329] provided for the creation of a mental hygiene commission to manage and conduct mental hygiene clinics primarily for the psychiatric and psychologic study and treatment of such children as may be committed to its care. An Oklahoma law [330] resulted in the enactment of a mental health law for that state. A Wisconsin law [331] created a mental health authority and a state mental health commission.

Physical Examination of Automobile Drivers.—A Maryland law [332] authorized the appointment of a medical advisory board to which would be referred all cases of persons applying for a driver's license when the granting of such license to such person would be inimical to public safety and welfare because of an existing or suspected mental or physical disability. A North Dakota law [333] required drivers of school buses to be examined annually by a reputable physician and to present to the school board a certificate of physical fitness showing that they are of good physical and mental health, able-bodied, free from communicable diseases, and with normal use of both hands, both feet, both ears and both eyes.

Physical Examinations of Food Handlers.—A Wisconsin law [334] required applicants for any job entailing the handling of food to submit a medical certificate stating that the applicant is free from communicable disease and venereal disease in a communicable stage, such certificate having been executed by a physician licensed to practice in the state. The law suggested that the fee of the physician for making such examination and certificate be $3.

Physical Examinations — Premarital.—Alabama, Delaware, Kansas and Montana enacted laws requiring a premarital examination. The Alabama law [335] amended the existing law by requiring the examination to be made of both applicants rather than just of the male as previously required. The certificate could be signed by a legally licensed physician in Alabama or in the state where the applicant resides certifying that the applicant is not infected with syphilis in a communicable stage. The Delaware law [336] required all persons desiring to obtain a marriage license to obtain a certificate from a duly licensed physician showing that the applicant had undergone a standard serologic test for syphilis and was not infected with such disease in a communicable stage. The Kansas law [337] required all persons applying for a marriage license to present a certificate signed by a physician legally qualified under the laws of the state of Kansas or of the state in which he is practicing setting forth that the applicant is not infected with syphilis in a stage making it communicable to a marital partner. The Montana law [338] required each applicant for a marriage license to present a certificate signed by a duly qualified physician licensed to practice medicine and surgery in any state or territory of the United States or any person authorized by the laws of Montana to make such certificate certifying that the applicant has been given an examination for the discovery of syphilis.

Physical Examinations—Prenatal.—Arkansas,[339] California [340] and New Hampshire [341] required every physician attending a pregnant woman for conditions relating to the pregnancy to take or cause to be taken a sample of blood of such woman at the time of the first examination and to submit the same to an approved laboratory for a standard serologic test for syphilis.

311. N. Mex., Laws, 1947, c. 51.
312. Texas, Laws, 1947, c. 344.
313. Conn., Acts, 1947, Public Act No. 196.
314. N. C., Laws, 1947, c. 929.
315. Kan., Laws, 1947, c. 330.
316. Pa., Acts, 1947, Act No. 25.
317. Okla., Laws, 1947, c.——, approved February 24, introduced as S. 22.
318. Calif., Laws, 1947, c. 469.
319. Fla., Laws, 1947, c.——, law without approval June 16, introduced as S. 911.
320. Maine, Public Laws, 1947, c. 191.
321. Okla., Laws, 1947, c.——, approved April 4, introduced as S. 101.
322. Wash., Laws, 1947, c. 168.
323. Md., Laws, 1947, c. 513.
324. Calif., Laws, 1947, c. 1010.
325. Conn., Acts, 1947, Public Act No. 233.
326. Iowa, Laws, 1947, c. 353.
327. Md., Laws, 1947, c. 327.
328. Nev., Laws, 1947, c. 257.
329. N. H., Laws, 1947, c. 279.
330. Okla., Laws, 1947, c.——, approved May 16, introduced as S. 122.
331. Wis., Laws, 1947, c. 170.
332. Md., Laws, 1947, c. 824.
333. N. D., Laws, 1947, c. 270.
334. Wis., Laws, 1947, c. 574.
335. Ala., Laws, 1947, Governor's Act 101.
336. Del., Laws, 1947, c. 313.
337. Kan., Laws, 1947, c. 241.
338. Mont., Laws, 1947, c. 208.
339. Ark., Acts, 1947, Act No. 71.
340. Calif., Laws, 1947, c. 705.
341. N. H., Laws, 1947, c. 275.

Physical Examinations of School Children.—A California law [342] made the testing of the sight and hearing of school children mandatory rather than permissive and provided that such tests shall be made only by duly qualified supervisors of health, such term not being defined. A Massachusetts law [343] required a thorough mental and physical examination of delinquent children prior to commitment. An Ohio law [344] amended the law relating to medical and dental inspection of school children by providing that such examinations shall include tests to determine the existence of hearing and visual defects in school children. A Wisconsin law [345] authorized school districts to require periodic health examinations of school children and school employees.

Physical Examinations of School Employees.—An Arkansas law [346] provided that all school employees shall, biennially, produce a certificate issued by a regularly licensed physician or regularly constituted health authority certifying that such individual is free from any and all forms of contagious or infectious diseases, including tuberculosis, and that the status of such individual regarding tuberculosis has been determined by an x-ray examination.

Physical Examinations—Miscellaneous.—A New York law [347] authorized an employer to require a minor applying for work to undergo a physical examination and the examining physician shall determine whether or not the applicant is physically qualified for the new employment. No certification by a physican shall be valid for longer than six months.

Surveys of Diseases.—A New York law [348] and a Washington law [349] proposed surveys relating to the problems of individuals afflicted with cerebral palsy. Laws relating to miscellaneous surveys are as follows: A California law [350] authorized the director of the state department of public health to investigate the problem of rheumatic fever and rheumatic heart disease as it affects the children in the state who are in need of diagnostic treatment and hospital and convalescent care, including occupational therapy, medical social services and school health programs related to this disease and the costs of such care, and the facilities needed to provide for them. A Maryland law [351] provided for the appointment of a commission to study medicolegal psychiatry in the state. A Michigan law [352] provided for the appointment of a commission to survey the procedure concerning the commitment and care of mentally ill persons. One Pennsylvania law [353] provided for the appointment of a joint commission to survey, investigate and consider all the laws relating to mental health and to revise and restate such laws in codified form, and another Pennsylvania law [354] provided for the appointment of a joint commission to make a complete investigation and study of the problems relating to the physiologic, psychologic, psychiatric, economic and social effects of alcoholism and the treatment and rehabilitation of persons so addicted.

Surveys Relating to the Distribution of Medical Care.—A California law [355] provided for the continuance of the Senate Interim Committee on Prepayment of Medical and Hospital Care and appropriated the sum of $2,500 for the expenses of such committee. A New York law [356] provided for the continuation of a temporary state commission created in 1938 to formulate a long-range state health program.

Surveys Relating to Hospitals.—A number of states enacted legislation designed to enable them to take advantage of the provisions of the federal hospital construction act. Twenty of them followed quite closely the model law prepared by the Council of State Governments in that they all required a survey of hospital facilities in the state and the preparation of a program for the construction of additional needed facilities. The laws also required the appointment of an advisory hospital council and authorized the state board of health or some other state authority to apply for and accept federal funds for assistance in the state's survey and construction program. These states are Arkansas,[357] California,[358] Colorado,[359] Idaho,[360] Iowa,[361] Kansas,[362] Michigan,[363] Missouri,[364] Montana,[365] New Hampshire,[366] Ohio,[367] Pennsylvania,[368] Rhode Island,[369] Tennessee,[370] Texas,[371] Utah,[372] Vermont,[373] Virginia,[374] Wisconsin [375] and Wyoming.[376] Six other states enacted laws containing slight variations from the model act: Maryland,[377] Nebraska,[378] New Jersey,[379] New Mexico,[380] New York [381] and South Dakota.[382] New laws in Illinois [383] and Maine [384] provided for the appointment of an advisory hospital council but made no reference to a survey, which had already been provided for by prior enactment. A Connecticut law [385] appointed the state department of health as the agency to administer the hospital and public health center survey and construction act.

Surveys of Specific Types of Hospitals.—A Maryland law [386] appointed the state board of health as an agency to administer a program of noninstitutional services for mentally ill persons and to develop a program for extending and improving services to such persons.

Vaccination.—A Maine law [387] authorized local health officers to annually provide for the free vaccination of all inhabitants within their jurisdiction and to provide for free inoculation against diphtheria and whooping cough of all children under 12 years of age. A New Jersey law [388] provided an appropriation to the state department of health for the purchase of smallpox vaccine and the distribution thereof free on such terms as the state department of health shall determine. A Pennsylvania law [389] authorized every school district of a certain class in the commonwealth to provide medical and dental examinations of school children in addition to vaccination of children of indigent parents.

Miscellaneous.—A Connecticut law [390] clarified definitions of standards as applied to clinical thermometers. A Florida law [391] authorized persons to donate and give their eyes for eyesight restoration purposes by last will and testament and authorized any state, county, district or other public hospital to purchase and provide the necessary facilities and equipment to establish and maintain an eye bank for restoration of sight purposes.

342. Calif., Laws, 1947, c. 377.
343. Mass., Laws, 1947, c. 616.
344. Ohio, Laws, 1947, c.——, approved June 11, introduced as S. 188.
345. Wis., Laws, 1947, c. 517.
346. Ark., Acts, 1947, Act No. 326.
347. N. Y., Laws, 1947, c. 854.
348. N. Y., Laws, 1947, c.——, adopted March 17, introduced as CCH A.R. 136.
349. Wash., Laws, 1947, c. 240.
350. Calif., Laws, 1947, Resolution c. 98.
351. Md., Laws, 1947, c. J.R. 14.
352. Mich., Acts, 1947, c.——, adopted May 22, introduced as H.R. 31.
353. Pa., Acts, 1947, Act No.——, adopted May 19, introduced as S.C.R. Serial No. 108.
354. Pa., Acts, 1947, Act No.——, adopted May 13, introduced as H.R. 20.
355. Calif., Laws, 1947, c.——, adopted January 9, introduced as S.Res. 14.
356. N. Y., Laws, 1947, c. 344.
357. Ark., Acts, 1947, Act No. 85.
358. Calif., Laws, 1947, c. 327.
359. Colo., Laws, 1947, c. 206.
360. Idaho, Laws, 1947, c. 220.
361. Iowa, Laws, 1947, c. 90.
362. Kan., Laws, 1947, c. 328.
363. Mich., Acts, 1947, Public Act 299.
364. Mo., Laws, 1946, c.——, approved October 17, introduced as H. 459.
365. Mont., Laws, 1947, c. 270.
366. N. H., Laws, 1947, c. 247.
367. Ohio, Laws, 1947, c.——, approved June 24, introduced as H. 490; Laws, 1946, c.——, approved August 28, introduced as S. 374-XXXX.
368. Pa., Acts, 1947, Act No. 527.
369. R. I., Laws, 1947, c. 1928.
370. Tenn., Public Acts, 1947, c. 16.
371. Texas, Laws, 1947, c. 405.
372. Utah, Laws, 1947, c. 52.
373. Vt., Laws, 1947, c.——, approved April 16, introduced as S. 45.
374. Va., Laws, 1947, c. 14.
375. Wis., Laws, 1947, c. 255.
376. Wyo., Laws, 1947, c. 159.
377. Md., Laws, 1947, c. 810.
378. Neb., Laws, 1947, c.——, approved March 21, introduced as L.B. 160.
379. N. J., Laws, 1947, c. 83.
380. N. Mex., Laws, 1947, c. 202.
381. N. Y., Laws, 1947, c. 578.
382. S. D., Laws, 1947, c. 131.
383. Ill., Laws, 1947, c.——, approved July 18, introduced as H. 284.
384. Maine, Public Laws, 1947, c. 391.
385. Conn., Acts, 1947, Public Act No. 410.
386. Md., Laws, 1947, c. 716.
387. Maine, Public Laws, 1947, c. 173.
388. N. J., Laws, 1947, c. 88.
389. Pa., Acts, 1947, Act No. 522.
390. Conn., Acts, 1947, Public Act No. 166.
391. Fla., Laws, 1947, c.——, law without approval May 27, introduced as H. 253.

GOVERNMENT SERVICES

ARMY

SELECTION BOARD FOR PROMOTION TO COLONEL

A five man board to study the qualifications of medical officers for promotion to permanent colonels was announced by the War Department, November 8, to meet in Washington, D. C., in December. The board will consider for promotion to colonel medical corps officers who were permanent lieutenant colonels on August 31. The board comprises Major Gen. Malcolm C. Grow, chairman, and Brigadier Generals John M. Willis, Omar H. Quade, Albert A. Kenner and Guy B. Denit.

GOVERNMENT-TRAINED MEDICAL OFFICERS

The armed forces have just offered preschedule separation from service or one year voluntary duty to about 2,200 government-trained medical corps officers. The order affects about 900 Navy V-12 doctors and about 1,300 nonvolunteer general duty Army medical officers who entered the service prior to May 1, 1946. Both services urge all those affected to make application prior to Dec. 1, 1947 to enter either the Army or Navy regular medical corps or to volunteer for one full year of service. Either selection, if accepted, will qualify individual doctors for the $100 monthly increase in pay authorized by the last Congress. Those who do not make application for regular commission or agree to serve voluntarily for one full year may make application for separation to become effective prior to Dec. 31, 1947. It is expected that only such numbers will be released early as will not reduce the active duty strength of the medical services below minimum requirements.

The Surgeon General of the Army explained that the Army's part in this program is a step toward placing service in the medical corps as far as possible on a volunteer basis. The Navy's action in reducing the obligated service of this group of V-12 officers is taken in order that they may establish early entitlement to the benefits of the Inducement Law and in order to facilitate long range planning for professional training. The order applies only to those officers who reported for active duty prior to May 1, 1946.

KEEPING CHOLERA OUT OF JAPAN

Early in April 1946 the first cases of cholera in Japan in many years were reported among repatriation ships from China. The Office of the Surgeon General, Washington, D. C., reports that the following methods were applied to prevent the further spread of cholera:

1. About 35,000,000 persons in Japan were given cholera vaccine in the summer of 1946.
2. All vessels with cholera patients aboard were anchored well off shore, and all personnel were quarantined on shipboard for two weeks after the last patient had been removed from the ship.
3. While in quarantine, all body discharges were sterilized before disposal.
4. All personnel received cholera vaccine prior to leaving the vessel.
5. All cholera patients were removed to hospital ships.
6. Stool examinations were done on all persons aboard vessels.
7. Fishing was prohibited near the ports.

Cholera was reported during the summer in 1946 in about a dozen foci of infection in widely separated areas in Japan. The total number of cases reported was about 1,200. Six sanitary squads were organized on a countrywide basis, and about 360,000 persons were engaged in sanitary work. Many of the cases of cholera occurred among refugees smuggled into the country from Korea. The Surgeon General's Office reports that as of November 14 no cases of cholera in Japan had been reported in 1947.

NAVY

FELLOWSHIP IN INDUSTRIAL COLLEGE

A ten month course beginning Sept. 2, 1948 at the Industrial College of the Armed Forces aims to train officers to conduct studies in mobilization of the national economy, procurement and economic warfare, to evaluate the economic war potential of foreign nations and to foster a close relation between the armed forces and civilian, scientific, educational and industrial groups. One place in this course has been assigned to the medical department of the Navy, which desires at this time applications from naval officers of the rank of commander and captain. The applicant must agree not to resign during this period and to remain in the Navy three years on completion of the course.

APPLICANTS SOUGHT FOR COMMISSIONS IN SERVICE CORPS

Applications for commissions in the new Navy Medical Service Corps are desired from qualified Naval Reserve and former temporary officers of the Navy. Vacancies in the new Navy corps, which was created in the last session of Congress, exist in the pharmacy, optometry and medical allied sciences fields. Ranks of ensign through captain are provided for in the new corps, which is under the supervision of the Bureau of Medicine and Surgery.

Naval Reserve and former temporary officers who hold science degrees in psychology, biochemistry, physics, biophysics, chemistry, medical statistics, public health, industrial hygiene, pharmacy, optometry or sanitary engineering are qualified to apply for appointment to permanent commissioned rank in the Medical Service Corps. Original appointments are being made in accordance with provisions of the act which permits reserve officers and former temporary officers to transfer to the Regular Navy if they served at least six months in commissioned status during World War II. Regardless of the date on which such officers terminated their active duty service, they are eligible for appointment provided they meet the age, educational and physical requirements. For information contact the nearest Naval Officer Procurement Office or the Commandant of your Naval District.

NAVAL MEDICAL INSTALLATIONS

There are twenty-eight naval hospitals in continental United States under the management control of the Bureau of Medicine and Surgery of the Navy, and five extracontinental naval hospitals. In addition, there are two naval dispensaries, one in Washington, D. C., and the other in San Francisco; four naval research units; two medical centers, one at Guam and one at Bethesda, Md. The center at Guam comprises the naval hospital, Guam Memorial Hospital, School of Nurses, School of Medical Practitioners and School of Dental Practitioners. The Navy also has four medical supply depots, three hospital corps schools, units at various Army commands, and medical units at Georgia Warm Springs Foundation and at the U. S. Public Health Service Hospital, Fort Worth, Texas.

PERSONAL

Rear Adm. Lamont Pugh (MC), assistant chief, Bureau of Medicine and Surgery, was guest speaker at the Armistice Day services at Winchester, Va. Admiral Pugh spoke on the important role that the Navy played in the early history of our country.

PHYSICIANS SEPARATED FROM SERVICE

ARMY MEDICAL CORPS OFFICERS RECOMMENDED FOR/OR RELIEVED FROM ACTIVE DUTY

Alabama

Blanton, George C. Jr.....Selma
Cooley, Harold N.....Birmingham
Davis, James E.....Homewood
Duff, Oliver A.....South Birmingham

California

Bills, Frederick G.....San Francisco
Bisbee, Rowe F.....Los Angeles
Bogdonovich, Andrew C...San Francisco
Brotman, Edward J.....Los Angeles
Castillo, Manuel deJ.....Wilmington
Chua, Gregorio P.....San Francisco
Kibrick, Edwin A.....Oakland
Mellinkoff, Sherman M.....Beverly Hills
Nelson, Harry C. Jr.....Los Angeles
Smith, Milton B.....San Francisco
Thom, John G.....Los Angeles
Walsh, John R.....San Francisco
Walters, Wesley R.....Chula Vista

Connecticut

Carter, Chapel E.....Orange
Intriere, Anthony D.....Greenwich

District of Columbia

Sherburne, John C.....Washington
Sloan, Ruell A.....Washington

Florida

Arrington, Thomas M.....Tavares
Stewart, James B.....Jacksonville

Georgia

Benson, Earl B.....Marietta
Coleman, Fred J.....Dublin
Dean, Harry B.....Macon
Edgerton, Milton T. Jr.....Atlanta
Mestre, Ricardo.....Atlanta

Idaho

Culp, Clyde E.....Moscow
Tigert, Russell Jr.....Caribou

Illinois

Bartels, John F.....Chicago
Brown, Spencer F.....Alton
Chambas, Harry D.....Chicago
Cole, Bart.....Peoria
Farnum, Charles G. Jr.....Peoria
Greer, Edward F.....Vandalia
Herzon, Herbert.....Chicago
Lage, Warren J.....Moline
Last, Jules H.....Highland Park
Levin, Bert.....Chicago
Marienfeld, Carl J.....Chicago
Nudelman, Melvin D.....Chicago
O'Donoghue, John B. Jr....Lake Forest
Rider, Joseph A.....Chicago
Ruggero, Santo L.....Chicago
Shepard, Richard A.....Chicago
Solarz, Sylvan D.....Chicago
Wilson, Ben Jr.....Glen Ellyn

Indiana

Chattin, Robert E.....Indianapolis
Johnson, Grant C.....Indianapolis
Knowles, Charles Y.....Indianapolis
Koontz, William A.....Tipton
McCoy, George E.....Lafayette
McKinley, Joseph.....Delphi
Stalter, Gaylord W.....Fort Wayne

Iowa

Blenderman, Albert D. Jr.....Sioux City
Foss, Eugene D.....Missouri Valley

Kentucky

Cord, Robert I.....Mount Sterling
Doerr, John C.....Ludlow
McLain, Ernest K.....Lexington
Sonne, Irvin H. Jr.....Louisville
Spalding, James C.....Lebanon

Louisiana

Cohn, Isidore Jr.....New Orleans
Ellington, Charles J. Jr.....Alexandria
Gladney, James F. Jr.....Homer

Maryland

Bacon, Arthur M. Jr.....Baltimore
Carpenter, William N.....Hancock
Liefmann, Robert.....Baltimore
Rolfes, Harry F.....Mount Rainer
Ruzicka, Francis F. Jr.....Baltimore

Massachusetts

Banks, Henry H.....Brookline
Delery, Alfred A.....Cambridge
Haddad, Albert.....Worcester
Jacques, Raymond B.....Fitchburg
Nabseth, Donald C.....Boston
Penta, Walter E.....Stoneham
Rutenburg, Alexander M.....Boston
Sagall, Elliot L.....Revere

Michigan

Barber, Radivoj R.....Detroit
Bawell, Malcolm B.....Detroit
Chamberlain, Ray W.....Shepherd
Champion, Richard H.....Detroit
Collins, James I.....Flint
Freud, John W.....Detroit
Keiser, Howard A.....Ludington
Klos, Henry J.....Detroit
Robinson, Fred W.....Sturgis

Minnesota

Daugherty, Guy W.....Rochester
Fogarty, Charles W. Jr.....St. Paul
Owen, Charles A. Jr.....Rochester
Peters, Gustavus A.....Rochester
Semsch, Robert D.....Minneapolis

Mississippi

Crockett, Denton W.....Winterville
Crowell, Robert W.....Jackson
Slater, Frank M. B.....Jackson

Missouri

Garrison, Roy F.....Kansas City
Kinsella, Edward D.....St. Louis
Martin, Samuel P.....East Prairie
Nigro, Edward R.....Kansas City
Orr, Thomas G. Jr.....Kansas City
Pursell, Marvin T.....St. Louis
Sale, Charles S.....Neosho

Nebraska

Gobel, Reginald T.....Crofton
Johnson, Wilbur E.....Valentine
Marvel, Robert J.....Hastings

New Jersey

Axilrod, Herbert D.....Atlantic City
Baeder, Robert L.....Orange
Betsch, William F.....Bound Brook
Brady, Edward A. Jr...New Brunswick
Dick, James.....Lakewood
Eisenstein, Bernard.....West New York
Fritz, Wilton G.....Ridgewood
Gross, Jerome D.....Jersey City
Helrich, Martin.....Atlantic City
Kearney, Paul A.....Newark
Lenci, George N. Jr.....Summit
Murphy, Edward U.....Hackensack
Nataro, Maurice.....Newark
Sall, Jack.....Paterson
Wilson, Robert C. III.....Somerville
Yeager, John J.....Yardville

New York

Beer, Morton A.....Brooklyn
Bleich, LaMoyne C.....Buffalo
Brooks, Alan M.....New York
Brucato, Salvatore J....Long Island City

New York—Continued

Caceci, Thomas G.....Bronx
Carasso, Matteo.....New York
Carroll, Gerald J.....Brooklyn
Clarke, Lloyd A.....Kenmore
Cline, Paul A.....Buffalo
Cohen, Emanuel S.....New York
Esserman, Paul R.....Brooklyn
Feldman, Fred.....Troy
Fernandez, John V.....Gloversville
Fink, Maximilian.....New York
Flood, Anthony J.....West Coxsackie
Gotham, Ivan J. Jr.....Watertown
Kaplowitz, Daniel.....New York
Kassel, Victor.....Brooklyn
King, Herbert S.....New York
Klaum, Arthur H.....Brooklyn
Koblentz, Aaron E.....Brooklyn
Konczakowski, Marian M.....Buffalo
Kriete, William T. Jr.....New York
Lacy, Burritt S. Jr.....Youngstown
Laverne, Albert I.....Brooklyn
Leider, Harold J.....Woodside, L. I.
Ludwig, Nathan B.....Brooklyn
Nolan, Thomas F. Jr.....New York
Privitera, Louis M.....Buffalo
Redfield, William V.....Dewitt
Reich, Nathaniel E.....Brooklyn
Robinson, George.....New York
Scafuri, Albert R.....New York
Tabacco, Salvatore.....Albany
Taggart, William J.....Bronx
Tascarella, James W.....Brooklyn
Victor, Ralph G.....Forest Hill, L. I.
Zolan, Harold.....Bronx

North Carolina

Duckett, Howard C. Jr.....Durham
Forbes, Gus Evans Jr.....Greenville
Foushee, John C.....Sanford

Ohio

Benham, William H.....Columbus
Brennan, Robert A.....Cleveland
Carroll, Thomas T.....Toledo
Coppedge, E. P. Jr...Cleveland Heights
Corday, Robert J.....Shaker Heights
DeCourcy, Neil B.....Cincinnati
Fortune, James F.....Ashtabula
Fulstow, Philip G.....Norwalk
Hartenian, Edward.....Cincinnati
Hill, Edward A.....Brewster
Lacock, Walter B.....Logan
Leeb, Moses.....Cleveland
McMahon, Robert E...Cleveland Heights
Preston, Robert H.....Cincinnati
Reineck, John A.....Norwalk
Watson, John S.....Columbus

Rhode Island

Gianfrancesco, Herbert B....Providence
Gibson, Jesse M.....Providence

Texas

Cadenhead, James F. Jr.....Weinert
Ezell, Harry E. Jr.....Corsicana
Greer, Sam J. Jr.....Water Valley
Morris, Roy H. Jr.....Brownwood
Pope, Fielding M.....Brownwood
Quick, David W. Jr.....Galveston
Thorne, Lansing S. Jr.....Lubbock
Watzlavick, August J. A....Schulenburg
Wells, Gould T.....Austin

Utah

Day, Philip L.....Salt Lake City
Fullmer, Cyril D.....Bear River City

Puerto Rico

Clintron, Miguel.....Ponce

Hawaii

Kashiwa, Lester T.....Waialua

V 13
1947

Medical News

(Physicians will confer a favor by sending for this department items of news of general interest: such as relate to society activities, new hospitals, education and public health. Programs should be received at least two weeks before the date of meeting.)

ALABAMA

University Anatomy Department.—Edgar C. Sensenig, Ph.D., has been appointed associate professor in the department of anatomy of the Medical College of Alabama, University of Alabama, Birmingham. Dr. Sensenig, formerly at Tulane University of Louisiana School of Medicine, New Orleans, was assistant professor of anatomy. A research grant of $6,700 has been made available to Dr. Sensenig by the National Institute of Health for studies on the vertebral canal and its contents. Dr. Thomas E. Hunt of the department of anatomy has received a research grant of $2,000 from the Cancer Research Division of the Donner Foundation. This grant will be used to further Dr. Hunt's studies on the factors concerned with cellular proliferation. A program of student teaching fellowships has been established in the department of anatomy. These twelve month fellowships are open to students who have completed the freshman year in medicine. Students accepting the scholarships take two years instead of the usual one year to complete the work of the sophomore year. During the two year scholarship period, they will divide their time between class work, laboratory instruction and research, the summer months being devoted entirely to research.

CALIFORNIA

Personal.—Dr. Jacob C. Geiger, director of public health, San Francisco, on October 8 received the official citation and scroll of the president of Costa Rica in gratitude for public health services rendered Costa Ricans in San Francisco. The Presidential Medal of Merit was also received by him from the Republic of Nicaragua October 1 for his services to the Nicaraguan colony in San Francisco.——Dr. John R. Philp, formerly of Pasadena, became the first full time health officer of Merced County August 1.——Dr. Herbert K. Abrams, Berkeley, a graduate of the University of Illinois College of Medicine, Chicago, 1941, has been appointed chief, bureau of adult health of the state department of health. Dr. Abrams was formerly employed by the U. S. Public Health Service and has performed general public health administrative and epidemiologic duties in this country and abroad.

New Atom Smasher.—The first modern linear accelerator, a new type of atom smasher, has gone into operation at the University of California, firing a beam of protons of 32,000,000 electron volts. It was built under the auspices of the Atomic Energy Commission by a group of Radiation Laboratory scientists, under the direction of Professor Luis W. Alvarez, nuclear physicist at the University of California's Radiation Laboratory. The accelerator injects protons into a long copper cylinder, where the particles are accelerated to higher energies by high frequency radio waves. The atom smasher, most powerful instrument ever constructed for the purpose of accelerating protons, accelerates more energetic protons as byproducts of routine bombardments, though not as primary particles. It was constructed as a possible prototype of a larger billion volt machine, and its successful operation verifies the practical feasibility of constructing such a machine, though Dr. Alvarez and his colleagues agree that the more recently conceived bevatron could be built for this energy range more easily and less expensively.

Laboratory for the Study of Q Fever.—When Q fever was discovered in Los Angeles County in May of this year, the National Institute of Health assigned Dr. Charles C. Shepard, Bethesda, Md., to the area to continue an epidemiologic investigation over a period of six weeks. Of the 60 cases diagnosed none has been more than moderately severe, and recovery has been complete without complication in two or three weeks. As a consequence of the findings of Dr. Shepard, the National Institute has assigned Dr. Robert J. Huebner, formerly of Seattle, specialist in rickettsial research, to establish a laboratory in this area for the purpose of studying Q fever. This is being done in collaboration with the Los Angeles County Health Department and in cooperation with all health departments and physicians of this area. The studies will seek to clarify the epidemiologic factors, improve diagnostic procedure, determine the magnitude of the problem and provide some method of control. Serum from patients believed to have Q fever will be tested. It is necessary to limit this service to cases in which the specimens of serum to be examined are accompanied by a brief résumé giving date of onset, pertinent clinical observations and the dates on which the specimens were taken. A sterile specimen of whole blood (10 cc. or more) taken with a dry syringe should be promptly mailed or otherwise delivered in a corked sterile test tube to the Director of Laboratories, County Health Department, 808 North Spring Street, Los Angeles 12.

ILLINOIS

Personal.—Dr. Everett P. Coleman, Canton, past president of the Illinois State Medical Society, has been awarded the distinguished service award of the Mississippi Valley Medical Society, for 1947.

Site for State Tuberculosis Hospital.—A $5,000,000 state-operated tuberculosis hospital will be built on a ten acre reservation in the Chicago West Side Medical Center. The area occupies an entire block bounded by Roosevelt Road, Taylor Street and Damen and Wolcott avenues. The five hundred bed hospital is one of three tuberculosis facilities to be built by the state. Others of one hundred bed capacity are to be built at Mount Vernon and at Savanna.

Forum on Industrial Aspects of Chest Diseases.—The Illinois Chapter of the American College of Chest Physicians will conduct a meeting on "The Industrial and Insurance Aspects of Chest Diseases" at the Congress Hotel, Chicago, December 5 at 8 p.m. A panel made up of Dr. Harold A. Vonachen, Peoria, representing industry, Dr. Roy W. Benton, Milwaukee, representing insurance, and Dr. David F. Loewen, Decatur, representing the chest physicians, will discuss cases, x-ray films and questions presented by physicians in the audience. A dinner has been arranged at the Congress Hotel for 6:30 p.m. Reservations must be in by December 3. All physicians are invited to bring problem cases and x-ray films for discussion by the panel. There is no registration fee.

Chicago

Personal.—Dr. Robert B. Lewy has been appointed clinical assistant professor of otolaryngology at the University of Illinois College of Medicine. Dr. Lewy has been on the staff of the university since 1937, except for a period of five years during which he was on leave of absence while on duty with the United States Army.——Dr. David J. Davis, dean emeritus, University of Illinois Medical School, resigned October 8 as president of the board of the Municipal Tuberculosis Sanitarium.

Dr. Lillie Dies.—Frank R. Lillie, Sc.D., Andrew MacLeish distinguished service professor emeritus of embryology and dean emeritus of the division of biologic sciences, University of Chicago School of Medicine, died November 5, aged 77, in Albert Merritt Billings Hospital of a cerebral vascular accident. Dr. Lillie was made coordinating head of the National Research Council in 1935, was president of the National Academy of Sciences, 1935-1939, and president of the Marine Biological Laboratories, Woods Hole, Mass., 1925-1942.

Society News.—At the meeting of the Chicago Society of Internal Medicine at the Drake Hotel December 15, four guest speakers, all Chicagoans, will take part in the program. Dr. Donald L. Kessler will speak on treatment of hypertension; Jeanne Miller, M.S., on comparative studies of iodine absorption of certain chemicals; Dr. Simon Zivin on amebic colitis, hepatitis and hepatic abscesses in veterans, and Dr. Hiram T. Langston on pleuropulmonary complications of amebiasis.

A panel discussion on diseases of the prostate gland is on the morning program of the Chicago Urological Society meeting December 4 in the Palmer House, 9:30 to 11 a.m. On the evening program two papers will be read, one on "Studies on the Relation of the p_H of Urine to Visualization with 'Neo-Iopax' in Excretory Urography" and the other "Large Retroperitoneal Ganglioneuroma in a Child."——At the regular monthly meeting of the Chicago Laryngological and Otological Society December 1 in the Chicago Illini Building, Dr. Henry L. Williams, Rochester, Minn., will speak on "Treatment of Certain Phases of Sinus Diseases."

Tice Memorial Library Established.—At their reunion meeting November 7 the Cook County Hospital Internes' Alumni Association announced plans for the establishment of a new medical library to be located in the Cook County Hospital. The library is to be founded in the name of Dr. Frederick Tice, who has been associated with the hospital for over fifty years. Alumni have contributed over $25,000 of the $75,000 estimated cost, and it is hoped that the balance of this fund will be contributed by other alumni, friends and persons interested in this project. The association hopes to make available to members of intern and resident staffs, as well as the attending staff, the texts, monographs and journals necessary for reference in

clinical and experimental investigation. The library will be adjacent to the record library of the hospital so that case histories may be studied and the results made available through publications. The program of the association included medical and surgical clinics at which former alumni including Drs. James B. Herrick, 1888, Tice, 1894, Edward H. Ochsner, 1897, Dallas B. Phemister, 1904, and Vernon C. David, 1907, all of Chicago, participated. Officers elected, all Chicagoans, were Drs. Manuel E. Lichtenstein, president; Edmund F. Foley, vice president, and William J. Baker, secretary and treasurer. A new alumni directory has recently been published. Copies may be obtained by writing to the secretary, 7 West Madison Street, Chicago.

INDIANA

State Medical Election.—At the annual meeting of the Indiana State Medical Association October 28-30 in French Lick, Dr. Augustus P. Hauss, New Albany, was chosen president-elect. Dr. Cleon A. Nafe, Indianapolis, becomes president January 1. The 1948 meeting will be held in Indianapolis October 26-28.

Immunization Program in Clark County.—The Clark County Medical Society in cooperation with parent-teacher's associations will sponsor an immunization program in the county schools by holding clinic sessions beginning December 1. The medical society plans to immunize each child under 3 years of age, providing parental consent is given, who has not received protective measures against diphtheria, smallpox or whooping cough.

MARYLAND

Dr. Sigerist Retires and Goes to Yale.—Dr. Henry E. Sigerist, who recently retired as professor of medical history at the Johns Hopkins University, Baltimore, has accepted appointment as research associate in medical history at Yale University School of Medicine, New Haven. Dr. Sigerist is now in a small town in Switzerland, where he plans to write eight volumes on the history of medicine since the beginning of civilization. He expects to complete the first volume within a year. Dr. Sigerist's appointment carries with it a professorial rank with an indefinite leave of absence.

MICHIGAN

Dr. Eaton Awarded Prize.—Dr. Robert M. Eaton, Grand Rapids, has been awarded the Rose Lampert Graf prize of the American Association for Thoracic Surgery for his paper on "Pulmonary Edema: Experimental Observations on Dogs Following Acute Peripheral Blood Loss."

Thousand New Cases of Measles.—Measles is spreading in Michigan from its original concentration in Kalamazoo County to the surrounding counties in the southwest quarter of the state, the Michigan Department of Health reports. There are scattered cases elsewhere in the state, including the upper peninsula. More than 1,000 new cases were reported during the month ending November 10.

MISSISSIPPI

New State Epidemiologist.—George F. Reid, U. S. Public Health Service, will conduct epidemiologic investigations for the state board of health, succeeding Emil Kotcher, Sc.D., who resigned to join the faculty of the University of Louisville School of Medicine, Louisville, Ky., as an associate professor of bacteriology.

NEW YORK

Sesquicentennial.—The one hundred and fiftieth annual meeting of the Medical Society of the County of Westchester was held at the Waldorf-Astoria Hotel, New York, November 18. The society is the first medical society to be organized in the state of New York and dates back to 1797.

Graduate Lectures at Mineola.—The Medical Society of the State of New York with the New York State Department of Health arranged lectures for the Nassau County Medical Society to be given Tuesday afternoons at 4 o'clock in the Nassau Hospital, Mineola, New York. The remaining lectures are:

December 2, Dr. John E. Emmett, New York, Common Parasitic Infections in General Practice.

December 9, Dr. George E. Anderson, Brooklyn, Dietetic Management of Diabetes.

December 16, Dr. A. Wilbur Duryee, New York, Peripheral Vascular Aspects of Arteriosclerosis and Aging.

New York City

Society News.—The newly organized Queens Pediatric Society of Long Island has elected Drs. Walter C. A. Steffen, president; Henry A. Reisman, president-elect; Louis Appel, secretary, and Meyeron Coe, treasurer.

Personal.—Dr. Henry B. Makover, formerly of the U. S. Public Health Service and recently associate director of Montefiore Hospital for Chronic Diseases, has become health and medical consultant to the Federation of Jewish Charities of Philadelphia.——Drs. Louis E. Siltzbach and Milton B. Rosenblatt have been promoted to the rank of attending physician on the division of pulmonary diseases of Montefiore Hospital and its County Sanatorium, New York.——Dr. Robert J. Booher, New York, spoke on "Recent Advances in Treatment of Cancer of the Gastrointestinal Tract" before members of the Gulf Coast Clinical Society October 2 at Mobile, Ala.

Industrial Medicine Dramatized Before Civic Leaders.—In a dramatization of "Medicine's New Role in Industry," more than twelve hundred civic leaders at the Waldorf-Astoria Hotel, New York, on September 30 heard Frank W. Abrams, chairman of the Standard Oil Company (New Jersey) decry the lack of attention to absenteeism in industry and urge health measures as the job of industrial management. In urging large firms to cooperate with recognized medical institutions in their health problems, Mr. Abrams said: "The moment we accept the great importance of work in this field, we will recognize that no health or medical department in any company or industry can capitalize the health opportunities which face industry without very important assistance."

Other speakers included Chancellor Harry W. Chase of New York University, Drs. Robert A. Kehoe, director, Kettering Laboratory, Cincinnati, and Howard A. Rusk, chairman, Department of Rehabilitation, New York University College of Medicine. Winthrop Aldrich, chairman of the Chase National Bank, was toastmaster. The dinner officially inaugurated a campaign for $4,000,000 in gifts from business and industry for the proposed New York University-Bellevue Medical Center.

$750,000 for Medical Research.—New York University College of Medicine has received research grants totaling nearly three quarters of a million dollars, according to the annual report for the year ending September 1. Grants totaled $138,000 for research in infantile paralysis. Of this amount the National Foundation for Infantile Paralysis, Inc., gave $70,000. The foundation's Greater New York Chapter gave $20,000 to the department of rehabilitation and physical medicine to evaluate the handicaps resulting from the disease, and the estate of Louise Wallace Hackney donated $48,000 for research, treatment or prevention.

For research in rheumatic fever and other projects the division of therapeutics received $67,500. A grant of $55,049 was given for studies relating to the cure and prevention of heart disease. Nearly $20,000 chiefly from the American Cancer Society and the New York City Cancer Committee will go to research in the causes of cancer. Other grants make possible research into the causes of alcoholism, schistosomiasis, tuberculosis, syphilis and other diseases. These grants were in addition to gifts totaling $2,500,000 to the capital funds for the New York University-Bellevue Medical Center.

NORTH CAROLINA

British Psychiatrist Visiting Professor at Duke.—Dr. William W. Sargant, British psychiatrist, has joined the staff of the Duke University School of Medicine, Durham, department of neuropsychiatry, as visiting professor for one year. Dr. Sargant is physician at the Maudsley Hospital, London, where he has conducted research for ten years, and serves as clinical director of psychiatry, Sutton Emergency Hospital.

SOUTH DAKOTA

University Appointments.—Earl B. Scott, Ph.D., formerly of the University of Pittsburgh biology department, has been appointed associate in anatomy at the University of South Dakota School of Medical Sciences, Vermillion. A graduate of the University of Pittsburgh, Dr. Scott recently served as captain in the chemical warfare division. Dr. H. Grant Skinner, formerly assistant professor of pharmacology, University of Alberta Faculty of Medicine, Edmonton, Canada, has been appointed assistant professor of pharmacology. He received his M.D. degree from Queens University Faculty of Medicine, Kingston, Ontario, Canada, 1938, practiced two years and taught for five years at the University of Western Ontario Medical School, London, Ontario, Canada.

TEXAS

University Appointment.—Dr. Charles R. Allen, a graduate of the University of Wisconsin Medical School, Madison, 1946, has been appointed associate professor of anesthesiology at the University of Texas Medical Branch, Galveston.

Personal.—Dr. Dudley A. Reekie, former health director of San Antonio, recently became the health director of Fort Worth. Dr. Reekie, a graduate of the College of Medical Evangelists, Loma Linda-Los Angeles, 1934, came to Texas last September from Chicago.

UTAH

Personal.—Dr. Keith A. Stratford, Ogden, has been appointed chairman of the Public Health Committee of the U. S. Junior Chamber of Commerce.

University News.—Sherman R. Dickman, Ph.D., recently a research associate in biochemistry, Columbia University, New York, has been appointed assistant professor in the department of biochemistry, University of Utah School of Medicine, Salt Lake City. Dr. Dickman is a graduate of the University of Illinois, 1937.——Dr. Chi-Ping Cheng, instructor in physiology at Hsiang-Ya Medical College, Changsha, China, and research fellow of the American Bureau for Medical Aid in China, is now a visiting research fellow in the department of pharmacology under Dr. Louis S. Goodman. Dr. Chuan-Yen-Wang, assistant expert, National Institute of Health, Nanking, China, and a Honan Provincial Government traveling scholar, is now doing graduate work in the department of pharmacology under Dr. Goodman.——The Tyndale Lectureships have been given by Dr. W. Barry Wood Jr., Busch professor of medicine and chairman of the department of medicine, Washington University School of Medicine, St. Louis, at the University of Utah School of Medicine. On October 13 he talked on "The Use of Antibiotics in the Treatment of Bacterial Infections" and on October 14 his subject was "Studies in the Mechanism of Recovery in Acute Bacterial Pneumonia." Dr. Wood is a graduate of Johns Hopkins University School of Medicine, Baltimore, 1936.

VIRGINIA

Appointments to State Board.—The governor has appointed Drs. Chester L. Riley, Winchester, to the state board of medical examiners, succeeding Dr. Philip W. Boyd, Winchester, and George B. Setzler, Pennington Gap, succeeding Dr. Francis H. Smith, Abingdon, both for a term of five years. Dr. Carson L. Fifer, Alexandria, was reappointed for a five year term.

Personals.—The health officer for the newly organized Amherst-Nelson District is Dr. Richard H. Laning, New York, whose headquarters are in Amherst. Dr. Laning is a graduate of University of Michigan Medical School, Ann Arbor, 1908. ——Dr. Richard T. Arnest, Chicago, has been appointed health officer of the Northern Neck Health District created October 1 with offices at Montross, Heathsville and White Stone.

WEST VIRGINIA

Fort Henry Academy Organized.—Under the sponsorship of the Ohio County Medical Society the Fort Henry Academy of Medicine has been organized with Dr. William C. D. McCuskey, Wheeling, president. The new organization will be strictly scientific in character and membership will be open to members in good standing of the county society and other medical societies in adjacent counties in West Virginia and Ohio. While the Ohio County Medical Society will continue to function for the purpose of administering business affairs as a component society of the West Virginia State Medical Association, it will sponsor no scientific programs. The academy will meet the fourth Tuesday of each month in the auditorium of the new Wheeling Hospital School of Nursing. Membership dues are $20 per year, in addition to the regular state and county dues assessed against members of the Ohio County Medical society.

PUERTO RICO

Physical Examinations of Students.—The University of Puerto Rico this year made a study of 527 boys as to age, weight, height, lung capacity, grip, strength, back lift, leg lift, pull-ups and chin-ups. Only 28 of the 527 made the norm. The doctors considered the generally poor muscular development to be due to lack of exercise, insufficient and improper food and faulty health habits. These physical and medical examinations will be extended to all the high schools and later to all the grammar schools of Puerto Rico.

Industrial Hospital to Be Constructed.—Act. No. 338, approved April 22, 1947 by the insular legislature, authorizes the manager of the State Insurance Fund to expend $1,700,000 or such part thereof as may be necessary for the construction and equipment of a hospital of industrial medicine and surgery and of physical rehabilitation for the care of workmen injured in labor accidents or suffering from occupational diseases. The allocation of funds will be as follows: for the construction of a three hundred and fifty bed hospital, equipment and furnishings, and the preparation of plans, $1,400,000; for a hundred bed dormitory for patients requiring physical rehabilitation, $200,000; for the purchase of land and incidentals, $160,000. Construction will be carried out by the Department of the Interior in San Juan.

The manager of the State Insurance Fund is also authorized to grant scholarships for the preparation of the technical and administrative personnel, and already several students have been sent to the United States. There will be also an outpatient department. The structure will fill all the requirements of the U. S. Public Health Service. A New York architect is now preparing the plans for this hospital.

GENERAL

National Society for Prevention of Blindness.—At the annual meeting of the National Society for the Prevention of Blindness December 12 in the Russell Sage Foundation Building, New York, Dr. Charles-Edward A. Winslow, Ph.D., New Haven, Conn., editor of the *American Journal of Public Health*, will speak on "Prevention of Blindness in the Public Health Program."

Annual Convention of Interns and Students.—The annual meeting of the Association of Interns and Medical Students will be held at the Illini Union, University of Illinois, Chicago, December 27-30. Open sessions will be devoted to addresses and symposiums on medical education and student welfare, extension of medical care, medical economics and the international health organization. The public has been invited to attend the open sessions. Other features of the convention will include exhibits, a prize-winning medical film and a joint session with the American Association for the Advancement of Science on the subject of atomic medicine.

Annual Meeting of Anesthesiologists.—The American Society of Anesthesiologists, Inc., will meet at the headquarters office, 745 Fifth Avenue, New York, December 4-5 under the presidency of Dr. Edward B. Tuohy, Rochester, Minn. A series of panel discussions make up the program. Subjects under discussion are blood transfusion, anesthetic mortality, intravenous procaine, reflex mechanism in anesthesia, economics of anesthesia, postoperative care, recent developments in applied physiology of respiration and circulation, inhalation therapy, new drugs and a symposium on shock. On December 6 clinics on surgical anesthesia, nerve blocking and related subjects will be held in various hospitals in the city, and moving pictures on anesthesia will be shown in the Johnny Victor Theater of the Radio Corporation of America.

National Committee for Mental Hygiene.—Nine persons who have made outstanding contributions to the cause of mental health have been elected members of the National Committee for Mental Hygiene: Dr. Paul R. Hawley, chief medical director, Veterans Administration; Charles A. Dickinson, Orono, Maine, secretary of the Maine Teachers' Mental Hygiene Association; Robert M. Goldenson, New York, director in 1945-1946 of a veterans' readjustment program; Lawrence K. Frank, director, Caroline Zachry Institute of Human Development, New York; Margaret H. Wagenhals, assistant editor of *Mental Hygiene*, New York; Rev. Otis R. Rice, chaplain, St. Luke's Hospital, New York; Rev. Rollin J. Fairbanks, executive director, Institute of Pastoral Care, Massachusetts General Hospital, Boston; Percy C. Magnus, vice chairman of the board of the combined Beekman-Downtown Hospital, New York, and Benjamin P. DeWitt, attorney, New York.

Special Society Elections.—The National Federation of Obstetric-Gynecologic Societies at its recent annual meeting elected Dr. William B. Thompson, Hollywood, Calif., president; Dr. Ralph E. Campbell, Madison, Wis., president-elect; Dr. Woodard D. Beacham, New Orleans, secretary, and Dr. Richard Paddock, St. Louis, treasurer. The headquarters of the society have been moved to New Orleans in the Hutchinson Memorial Building of Tulane University of Louisiana School of Medicine. ——At the last meeting of the American Association for Thoracic Surgery Dr. E. W. Alton Ochsner, New Orleans, was elected president and Dr. Brian B. Blades, Washington, D. C., secretary.——At the annual meeting of the Central Neuropsychiatric Association, Galveston, Texas, October 17-18, officers elected were: Drs. William C. Menninger, Topeka, Kan., president; Lealdes M. Eaton, Rochester, Minn., secretary-treasurer, and Clarence E. Van Epps, Iowa City, counselor.

Journal of Bone and Joint Surgery to Expand.—Beginning in January, 1948, the American and British editorial boards of the *Journal of Bone and Joint Surgery* will be enlarged to a membership of sixteen each, thus making possible adequate geographic representation. Collaboration in the broader aspects of policy and correlation of activities of the two boards will be possible through joint meetings. The journal, at present a quarterly, will have eight issues a year, four to be edited and published in Great Britain and four in the United States. They will appear alternately at six week intervals. The American Othopaedic Association, the British Orthopaedic Association and the American Academy of Orthopaedic Surgeons are sponsoring this extension of the journal. The British editor is Sir Reginald Watson-Jones, and the American editor Dr. William A. Rogers, Boston. Articles submitted for publication from all nations will be welcome and may be submitted to either the American offices, 8 The Fenway, Boston 15, or the British editorial offices, 45 Lincoln's Inn Fields, London W.C. 2, England.

Vocational Rehabilitation for Hard of Hearing.—The Federal Security Agency's Office of Vocational Rehabilitation invites civilians who have job handicaps resulting from deafness or hardness of hearing to take advantage of facilities of the State-Federal Program of Vocational Rehabilitation. Divisions of vocational rehabilitation in every state, the District of Columbia, Alaska, Hawaii and Puerto Rico provide rehabilitation services for handicapped civilians. The office estimates that at least 33,000 deaf civilians and 206,000 who are hard of hearing are eligible for services from the state vocational rehabilitation agencies. These services include physical and aural examinations to determine extent of disability, work capacity and eligibility; medical, surgical and psychiatric treatment and hospital care; artificial devices to increase workability; individual counsel, guidance training and placement for the right job and postplacement follow-up. Other services may include maintenance and transportation during the rehabilitation process; necessary occupational tools, equipment and licenses. Many of these services are given free of charge, and the rest come within the ability of the patient to pay.

Powdered Milk For Shipment To Europe.—The State Department announces that the International Children's Emergency Fund has commenced its program of aid to children of war devastated nations with the shipment in October of 3,000,000 pounds of powdered milk to be distributed in Albania, Austria, Greece, Poland and Yugoslavia. By the end of this year the Fund will be moving food, clothing and other relief supplies for about 5,000,000 children in Europe and the Far East. The Fund will consist of assets made available by UNRRA and voluntary contributions by governments, individuals, agencies or other sources. On September 20, 1947 the assets of the Fund amounted to about $25,000,000, three fifths of which were contributed by the United States under the law enacted May 31, 1947, authorizing a foreign relief program; $5,000,000 was given by Canada; $5,000,000 from funds freed by UNRRA's liquidation, and $900,000 donated by France; other governments have indicated that they will contribute. The International Children's Emergency Fund hopes to raise $450,000,000 to bring relief to at least part of the 60,000,000 needy children (half in Europe and half in the Far East). To aid in reaching this goal, the United Nations is planning a universal appeal in behalf of children early in 1948.

Plans to Improve Treatment of Leprosy.—The Advisory Medical Board of the Leonard Wood Memorial and a group of consulting chemotherapists, nominated by the chairman of the Medical Division of the National Research Council, met Nov. 10 in New York to plan extensive research to find improved drugs or methods for the treatment of leprosy. Two plans received general approval. One is to establish a cooperative scheme with selected workers in various countries under a central coordinating committee whereby drugs now in use may be evaluated with uniform methods of procedure and recording. Another is to establish, in connection with some suitable leprosy institution, a testing unit with special personnel to make preliminary tests of drugs which appear to be of promise but which have not yet been applied in this disease. The discussions were necessarily of preliminary character, resulting in leads for further exploration rather than final conclusions.

A conference of expert medical photographers called by the Leonard Wood Memorial was held in New York on November 10-11 to discuss the problem of better and standard methods of graphically recording the results of these treatments and to recommend equipment and procedure which will make possible the production of good uniform clinical photographs by personnel (sometimes limited in photographic experience) situated in various parts of the world. The committee discussed a list of standard equipment, and an invitation was extended by Dr. F. A. Johanson, Medical Officer in Charge at the U. S. National Leprosarium, Carville, La., to have a member of the committee visit that institution to conduct field tests of the suggested apparatus. Mr. William Taylor, Philadelphia, was elected to attend. It was also agreed to have a photography exhibit at the International Congress of Leprosy to meet in Havana, Cuba, April 3-11, 1948.

Anniversary of Discovery of Insulin.—Eli Lilly and Company has prepared a memorial edition of the Physician's Bulletin in response to many requests from those who attended the International Diabetes Clinic at Indiana University Medical Center, Indianapolis, September 23, 1946 to celebrate the twenty-fifth anniversary of the discovery of insulin. The booklet contains the addresses on this occasion by Dr Charles H. Best of the University of Toronto, Dr. Banting's associate; Dr. Bernardo A. Houssay of Buenos Aires, recent recipient of the Nobel Prize for his work on diabetes; Dr. Elliott P. Joslin, Boston, and Josiah K. Lilly, LL.D., Indianapolis; Dr. Robert D. Lawrence, London, England; Dr. Hans C. Hagedorn, Denmark; Dr. Joseph H. Barach, Pittsburgh; Dr. John R. Williams, Rochester, N. Y.; George H. A. Clowes, Ph.D., Indianapolis. These and other distinguished speakers and guests had assembled during the previous week at the University of Toronto with members of the American Diabetes Association, to commemorate the discovery of insulin. The first experimental discovery of Banting and Best of an antidiabetic principle was obtained on July 27, 1921, when they observed a definite lowering of the blood sugar of a depancreatized dog following injection of 5 cc. of crude extract of pancreas. The Indianapolis group began its participation in this problem in the spring of 1922. A bronze plaque on the small laboratory in the Physiology Department at the University of Toronto, where the original experiments were conducted, contains the following inscription:

On the 30th October, 1920, Frederick Grant Banting originated the hypothesis that the failure theretofore to isolate the internal secretion of the pancreas had been due to its destruction by the ferments liberated during the process of extraction. He devised an experimental method by which this destruction could be avoided and the internal secretion (now known as insulin) obtained. In May 1921, Banting and Charles Herbert Best, both graduates of the University of Toronto, conducted in this room the experiments which culminated in the isolation of insulin.

FOREIGN

Personal.—Dr. Carl M. Hasselmann, Direktor Der Universitäts Hautklinik, Erlangen, Germany, a graduate of the University of Würzburg Faculty of Medicine, Bavaria, 1921, writes that he has been appointed to the chair of dermatology and venereology at the University of Erlangen and chief of the clinics. Dr. Hasselmann was in Manila in the Philippines until the outbreak of the Pacific War, then in Shanghai, China. He was formerly a special consultant, U. S. Public Health Service, in Manila.

Marriages

ALLAN LLOYD FRIEDLICH Jr., New York, to Mrs. Elaine Ebenstein Joel of Beverly Hills, Calif., September 7.

JAMES A. MCLEOD, Florence, S. C., to Miss Olga A. Kaukas of Hoosick Falls, N. Y., in New York June 14.

WILLIAM ROBINSON STRADER, Bluefield, W. Va., to Miss Patsy Lee Kelly of Richland, Va., July 9.

VICTOR DARWIN THOMAS, Galesburg, Ill., to Miss Edna Naomi Bueckmann of St. Louis, June 21.

ROBERT WRIGHT HILLMAN to Dr. CATHERINE MARY HEGARTY, both of New York, June 21.

RALPH GLENN WHITMER, Oak Park, Ill., to Miss Harriet Echternach of Sterling, Ill., July 12.

WAYNE WILLIS GLAS to Miss Anne Catharine Highley, both of Ann Arbor, Mich., July 10.

THOMAS GUCKER III, Philadelphia, to Miss Harriett Young Lloyd of Greenville, N. C., July 3.

JOHN ELIAS FREED JR., Terre Haute, Ind., to Miss Jean Johnston of East Chicago, July 12.

PHILIP HARRY HOVER, Kingston, N. Y., to Miss Elaine Gerhart of Philadelphia, June 8.

JOSEPH EDWARD HENRY to Miss Dolores Margaret Wessner, both of Foley, Minn., June 23.

AUGUST BALDWIN TURNER to Miss Teresa Tidmore, both of Atlanta, Ga., June 17.

Deaths

Warren Pearl Morrill, Chicago; born in Benton Harbor, Mich., Jan. 20, 1877; Johns Hopkins University School of Medicine, Baltimore, 1908; since 1933 director of research for the American Hospital Association; at one time superintendent of the Sydenham Hospital in Baltimore, Winnipeg General Hospital in Winnipeg, Manitoba, Canada, University Hospital, Augusta, Ga., Shreveport (La.) Charity Hospital, Columbia Hospital for Women, Washington, D. C., and Maine General Hospital in Portland, Maine; veteran of the Spanish American War; colonel, medical reserve corps, not on active duty; served with the American Expeditionary Forces during World War I; in 1931 became a field representative for the American College of Surgeons, conducting surveys of state institutions in Texas and Connecticut until 1933; author of "Hospital Manual of Operation"; editor of "Hospital Abstract Service" and "Medical Abstract Service"; died in the Passavant Memorial Hospital September 28, aged 70, of carcinoma of the colon.

Samuel Robinson ✠ Santa Barbara, Calif.; born in Augusta, Maine, Feb. 23, 1877; Harvard Medical School, Boston, 1902; member of the founders group of the American Board of Surgery; member of the American Association of Thoracic Surgery, Pacific Coast Surgical Association and the National Gastroenterological Association; fellow of the American College of Surgeons; at one time affiliated with the Mayo Clinic as head of the section on thoracic surgery and first assistant in a section on general surgery and assistant professor of surgery, Mayo Foundation, Graduate School, University of Minnesota, both in Rochester, Minn.; served during World War I; on the staffs of St. Francis and Santa Barbara Cottage hospitals; died September 17, aged 70.

Oliver Silas Steiner ✠ Lima, Ohio; born Jan. 21, 1874; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1901; past president of the Academy of Medicine of Lima and Allen County, and of the Northwestern Medical Association; fellow of the American College of Surgeons; formerly county coroner; for many years member of the board of health of Lima and surgeon for the Baltimore and Ohio Railroad; examiner on medical advisory board and captain in the medical corps of the U. S. Army during World War I; for fifteen years member of the board of trustees of the District Tuberculosis Hospital; affiliated in various capacities with Lima Memorial and St. Rita's hospitals; died September 13, aged 73, of a cerebral accident.

Ervin Albert Peterson ✠ East Cleveland; born in Xenia, Ohio, March 27, 1878; Western Reserve University Medical Department, Cleveland, 1910; demonstrator of pediatrics at his alma mater; during 1918-1919 served as major with the American Red Cross Commission on Tuberculosis to Italy and had charge of the department of school hygiene; formerly director of the health service department of the American Red Cross; at one time director of the department of school health in Cleveland; served as director of the Cuyahoga County Public Health Association; on the courtesy staff of Huron Road Hospital; on the staff of University Hospitals of Cleveland; died in the University Hospitals in Cleveland September 5, aged 69, of coronary thrombosis and lymphosarcoma.

Arthur Evarts Lord ✠ Plano, Ill.; born in Plano, Oct. 5, 1883; Rush Medical College, Chicago, 1908; health officer; past president of the Association of Military Surgeons of the United States; served in the medical corps of the U. S. Army during the Mexican border campaign and overseas during World War I; for many years surgeon general of the Illinois National Guard, retiring in 1946 with the rank of brigadier general; president of the Plano High School board; for many years deputy coroner and coroner of Kendall County; director of the Plano Bank; on the staff of St. Charles Hospital in Aurora; died in Sandwich, September 13, aged 63, of hypertension and coronary heart disease.

Joseph Battiato L'Episcopo ✠ Brooklyn; born in Italy June 14, 1890; Long Island College Hospital, Brooklyn, 1914; professor of clinical orthopedic surgery at his alma mater; specialist certified by the American Board of Orthopedic Surgery; member of the American Academy of Orthopedic Surgeons; fellow of the American College of Surgeons; served during World War I; affiliated with Columbus Hospital in New York, St. Joseph Hospital, Far Rockaway, Bushwick Hospital, Carson C. Peck Memorial Hospital, Kings County Hospital, House of St. Giles the Cripple and Long Island College Hospital, where he died September 5, aged 57.

Charles Francis Adams, New York; College of Physicians and Surgeons, medical department of Columbia College, New York, 1890; member of the American Medical Association; served on the staffs of the Columbus, St. Elizabeth, Woman's and St. Clare's hospitals; died September 14, aged 83, of uremia and hypertension.

Edward Hall Baker, Los Angeles; Illinois Medical College, Chicago, 1904; University of Pennsylvania Department of Medicine, Philadelphia, 1908; formerly practiced in Chicago; died September 14, aged 85, of coronary occlusion.

Joseph Vincent Bergin ✠ Paterson, N. J.; New York University Medical College, New York, 1898; specialist certified by the American Board of Pediatrics; member of the American Academy of Pediatrics; past president of the Passaic County Medical Society; chief of the pediatric service of St. Joseph's Hospital, where he died September 11, aged 71, of arteriosclerotic heart disease.

Jules Blechschmidt ✠ Philadelphia; Jefferson Medical College of Philadelphia, 1908; specialist certified by the American Board of Pediatrics, Inc.; for many years associate in pediatrics at his alma mater; served for two years as a medical missionary at Haifa, Palestine; for many years chief pediatrician on the staff of Philadelphia Hospital and medical director of the Baby Welfare Association; died September 6, aged 73, of cerebral hemorrhage.

Martin Millard Brown ✠ North Adams, Mass.; Rush Medical College, Chicago, 1888; fellow of the American College of Surgeons; served as a member and president of the city council; for many years a member of the school board; consulting surgeon at the W. B. Plunkett Memorial Hospital in Adams; affiliated with the North Adams Hospital; one of the founders and past president of the North Adams Kiwanis Club; died September 18, aged 84, of heart disease.

Henry Dominic Brusco ✠ San Francisco; Cooper Medical College, San Francisco, 1908; at one time member of the city board of health; served during World War I; formerly examining surgeon, Department of Interior, bureau of pensions, examining Spanish-American and World War I veterans; for many years on the staffs of Southern Pacific General and St. Francis hospitals; died August 24, aged 59, of encephalomalacia and arteriosclerosis.

Jacob Richter Buchbinder, Chicago; Northwestern University Medical School, Chicago, 1911; member of the founders group of the American Board of Surgery; associate professor of surgery at his alma mater; member of the American Medical Association and the Western Surgical Association; served overseas during World War I; for many years on the staffs of Cook County Hospital and Passavant Memorial Hospital, where he died September 17, aged 60, of lymphosarcoma.

William Henry Butler, Abilene, Texas; Meharry Medical College, Nashville, Tenn., 1910; died in Chatman Hospital, Lubbock, September 8, aged 67, of chronic nephritis, myocarditis and endocarditis.

James Luther Church, Chicago; the Hahemann Medical College and Hospital, Chicago, 1905; served during World War I; died September 18, aged 64, of coronary thrombosis.

John Robert Cochran Jr. ✠ Evanston, Ill.; Harvard Medical School, Boston, 1937; specialist certified by the American Board of Surgery; member of the Chicago Surgical Society; instructor of surgery at Northwestern University Medical School, in Chicago, where he was on the staff of St. Luke's Hospital and where he died September 27, aged 37, of hypertension.

Wayne Hector Crum ✠ Major, U. S. Army, retired, St. Petersburg, Fla.; Kentucky University Medical Department, Louisville, 1905; entered the medical corps of the U. S. Army as a first lieutenant on May 21, 1910; retired Jan. 25, 1921 after eleven years' service; died Dec. 15, 1944, aged 61.

Alfred Lee Ellis, Baltimore; College of Physicians and Surgeons, Baltimore, 1904; member of the American Medical Association; formerly demonstrator of anatomy at the Womans Medical College; died in the Johns Hopkins Hospital September 11, aged 78, of cerebral thrombosis and hypertension.

Archie Paul Evans ✠ Hawkinsville, Ga.; Jefferson Medical College of Philadelphia, 1929; first lieutenant, medical corps, Army of the United States, not on active duty; died August 29, aged 41.

Edgar James Farrow ✠ Major, U. S. Army, retired, San Diego, Calif.; Medical Department of the University of California, San Francisco, 1900; veteran of the Spanish-American War and World War I; entered the medical corps of the U. S. Army in 1917; retired on Dec. 15, 1922; died September 23, aged 76, of arteriosclerosis and acute heart failure.

Ulysses Charles Fattebert, Phoenix, Ariz.; St. Louis University School of Medicine, 1905; at one time a medical missionary in Mexico and the Philippines; died September 3, aged 76, of heart disease.

Timothy Peter Flynn ✠ Lancaster, N. H.; St. Louis University School of Medicine, 1934; served overseas during World War II; died September 1, aged 38, of coronary thrombosis.

George Heustis Fonde, Mobile, Ala.; Medical College of Alabama, medical department of the University of Alabama, Mobile, 1897; served as lecturer in anatomy and assistant in various departments at his alma mater for many years; veteran of the Spanish-American War; died September 3, aged 74, of carcinomatosis.

Ward Bryant Hoag, Larchmont, N. Y.; Bellevue Hospital Medical College, New York, 1892; member of the American Medical Association; emeritus professor of pediatrics at the New York Polyclinic Medical School and Hospital in New York; past president of the New York Physicians Mutual Aid Association; formerly treasurer of the New York Medico-Surgical Society; at one time affiliated with St. Mary's Free Hospital for Children in New York; died in Northampton, Mass., September 16, aged 88, of arteriosclerosis.

Mary Keyt Isham, Cincinnati; Laura Memorial Woman's Medical College, Cincinnati, 1903; served as instructor in psychiatry at the New York Post Graduate Medical School and Hospital and neurologist at the Cornell Dispensary in New York; at one time on the staff of the State Hospital in Columbus, Ohio; died September 28, aged 76, of cerebral hemorrhage.

Clement Alphonsus Jarka, St. Albans, N. Y.; Cornell University Medical College, New York, 1922; member of the American Medical Association; affiliated with St. Catherine's Hospital in Brooklyn and Mary Immaculate Hospital in Jamaica; died September 1, aged 51, of carcinoma of the stomach.

Walter Falke Jones, New York; Johns Hopkins University School of Medicine, Baltimore, 1914; fellow of the American College of Surgeons; member of the American Medical Association; an officer during World War I; served on the staffs of the Hospital for Special Surgery and Manhattan General Hospital; formerly medical director of the Globe, Royal and Eagle indemnity companies; died September 9, aged 61.

Eugene Augustine Kennedy, Woonsocket, R. I.; College of Physicians and Surgeons, Baltimore, 1896; served as a member of the medical staff of Woonsocket Hospital; died August 17, aged 75, of arteriosclerotic heart disease.

Theodore Lamson ✠ Colonel, U. S. Army, retired, Miami, Fla.; Johns Hopkins University School of Medicine, Baltimore, 1901; entered the U. S. Army as an assistant surgeon on Oct. 8, 1903; served during World War I; retired Aug. 10, 1920; died October 20, aged 72, of cerebral hemorrhage.

Gerald Ellsworth McDonnel, Mount Holly, N. J.; Jefferson Medical College of Philadelphia, 1923; member of the American Medical Association; served during World War I; killed September 3, aged 52, in an automobile accident.

General W. McGowen, Bolton, Miss.; Chattanooga (Tenn.) Medical College, 1909; died September 15, aged 70, of bronchopneumonia and cardiovascular renal disease.

Thomas Jeremiah McKean ✠ Montpelier, Ind.; Medical College of Indiana, Indianapolis, 1905; served as city and county health officer; served during World War I; died September 15, aged 74, of cerebral embolism.

Charles Leonard Myers, Albany, N. Y.; Albany (N. Y.) Medical College, 1895; died September 1, aged 91, of cerebral hemorrhage.

Israel Nathanson, Los Angeles; Loyola University School of Medicine, Chicago, 1917; formerly practiced in Chicago; died September 13, aged 65.

Carroll Henry Ricker ✠ Worcester, Mass.; Tufts College Medical School, Boston, 1907; affiliated with Worcester City Hospital, where he died September 6, aged 79.

Jesse Rowe, Abington, Ill.; Rush Medical College, Chicago, 1894; served during the Spanish-American War and World War I; for many years surgeon for the Chicago, Burlington and Quincy Railroad; died September 24, aged 77, of acute cardiac failure and arteriosclerosis.

Moses Sahud, Chicago; University of Denver Medical Department, 1897; member of the American Medical Association; past president of the Northwest Branch of the Chicago Medical Society; affiliated with Lutheran Deaconess Hospital, where he died September 28, aged 78, of cerebral thrombosis.

George J. Schneider, Elgin, Ill.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1889; member of the American Medical Association; past president of the Kane County Medical Society; on the staffs of Sherman and St. Joseph's hospitals; served as president of the school board; died September 30, aged 81, of cerebral arteriosclerosis.

Walter Scott Siewerth ✠ Chicago; University of Illinois College of Medicine, Chicago, 1915; affiliated with Ravenswood Hospital, where he died September 2, aged 57, of heart disease.

Leslie Pearl Sloan, Oblong, Ill.; University of Louisville (Ky.) Medical Department, 1916; member of the American Medical Association; for many years county coroner; secretary and past president of the Crawford County Medical Society; died September 5, aged 56, of coronary occlusion.

Dale DeWitt Smith, Decatur, Ill.; Loyola University School of Medicine, Chicago, 1918; member of the American Medical Association and the Central Association of Obstetricians and Gynecologists; fellow of the American College of Surgeons; affiliated with the Decatur and Macon County Hospital and St. Mary's Hospital; consultant, Macon County Tuberculosis Sanatorium; died September 7, aged 53, of coronary thrombosis.

Victor Theis, Chicago; Dearborn Medical College, Chicago, 1905; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1908; on the staff of St. Joseph's Hospital; died September 10, aged 77, of chronic myocarditis and pneumonia.

George Humphrey Thomas, Staunton, Va.; University of the City of New York Medical Department, New York, 1891; member of the American Medical Association; served during World War I; on the staff of Western State Hospital; died September 5, aged 80, of chronic myocarditis.

Lester L. Walker ✠ Bel-Nor, Mo.; St. Louis College of Physicians and Surgeons, 1907; died September 4, aged 65, of heart disease.

William C. Walker, Houlka, Miss. (licensed in Mississippi in 1882); member of the American Medical Association; died August 12, aged 87, of cerebral hemorrhage.

Frank J. A. Wall, Chicago; Jenner Medical College, Chicago, 1904; veteran of the Spanish-American War; on the staff of St. Bernard's Hospital; died September 21, aged 70, of coronary thrombosis.

Harrison K. Walterhouse, Ladoga, Ind.; Medical College of Indiana, Indianapolis, 1904; member of the American Medical Association; served on the staff of Culver Hospital at Crawfordsville; died September 7, aged 68, of an injury to the heart caused by an automobile accident.

James Franklin Waters, Sikeston, Mo.; American Medical College, St. Louis, 1904; died August 6, aged 81.

William Meyers Wear, Paris, Ark.; University of Arkansas School of Medicine, Little Rock, 1911; served as a member of the board of education of Paris and of Logan County; died August 30, aged 80, of senility.

Frank Joseph Wochos ✠ Kewaunee, Wis.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1907; died August 25, aged 69, of coronary thrombosis.

DIED WHILE IN MILITARY SERVICE

John August Duffalo Jr. ✠ Surgeon, lieutenant commander, U. S. Navy, Oakland, Calif.; born in Minneapolis July 31, 1915; University of Minnesota Medical School, Minneapolis, 1940; interned at Milwaukee County Hospital at Wauwatosa, Wis.; diplomate of the National Board of Medical Examiners; on the staff of Montana State University Health Service in Missoula, Mont., from 1940 to 1942; member of the Medical Association of Montana; began active duty as a lieutenant (jg) in the medical corps of the U. S. Naval Reserve on June 13, 1942; later transferred to the regular U. S. Navy; promoted to lieutenant and lieutenant commander; on duty at U. S. Naval Hospital in Bremerton, Wash., and U. S. Naval Recruiting Station, Fargo, N. D.; flight surgeon at U. S Naval Air Stations at Pensacola, Fla., St. Louis, Seattle, Pasco, Wash., Holtville, Calif., and Whidbey Island, Wash.; flight surgeon for Composite Squadron VC-85 ashore and aboard the escort carrier *Lunga Point* during the invasions of Leyte, Lingayen Gulf, Luzon, Iwo Jima and Okinawa; at the time of his death, resident in ophthalmology at the U. S. Naval Hospital; died July 6, aged 32, of coronary insufficiency.

V 1
194

Foreign Letters

LONDON

(From Our Regular Correspondent)

Oct. 25, 1947.

The Superannuation of Physicians in the National Health Service

Although the National Health Service does not come into force until next year, the government has already produced a pension scheme for the medical practitioners to be employed. The main benefits are threefold: (1) a pension on retirement; (2) a retiring allowance on retirement, and (3) a widow's pension for doctors' wives who survive them. If a male doctor is unmarried he will receive a retiring allowance thrice the value of that granted to a married practitioner. The scheme is contributory; a doctor will have to pay 6 per cent of his or her remuneration, the executive council contributing 8 per cent. The rate of remuneration is not yet calculable, as the conditions have not yet been agreed with the members of the profession.

The pension to be paid to a doctor will be on the following scale: (1) for each year of service as a practitioner, 0.5 per cent of his remuneration for that year; (2) for each year of contributing service other than as a practitioner, 1/80th of his remuneration at that date on which he last ceased to be employed in such other capacity; (3) for each year of noncontributing service, 1/160th of his average remuneration at the date on which he last ceased to be employed in such other capacity. If the contributing service of a practitioner exceeds forty years and he has no service in any other capacity, the pension will be calculated by reference to the last forty years.

The retiring allowance to be paid to a practitioner will be the aggregate of the following amounts: (1) for each year of contributing service as a practitioner, 4.5 per cent of his remuneration for that year; (2) for each year of contributing service other than as a practitioner, 3/80ths, and for each year of noncontributing service, 3/160ths, of his average remuneration at the date on which he last ceased to be employed in such other capacity; however, in the case of a married male practitioner to whose wife a widow's pension may become payable, the retiring allowance will be reduced to one-third.

The widow's pension is equivalent to a third of the pension payable to the practitioner or a third of the amount of pension to which he would have been entitled had he retired on the day preceding his death. Her pension will be reduced or raised according to whether her age was less or greater than her husband's. It will cease if she remarries.

Treatment of Cerebrospinal Fever

The Scientific Advisory Committee of the Department of Health for Scotland has made an important report comparing the penicillin and sulfonamide treatment of meningococcic meningitis in children. This was made in five large hospitals for infectious diseases. Of 62 patients with meningococcic meningitis who were under the age of 5 years, comparison was made between thirty-five treatments with penicillin and thirty-one treatments with sulfonamide drugs. The sulfonamide preparations alone gave better results (twenty-six successful, or 84 per cent) than penicillin alone (twenty-four successful, or 69 per cent). These figures confirmed the strong clinical impression of the superiority of the sulfonamide compounds. Another group of 15 patients received both drugs and there were no deaths. This experience has determined the course of further inquiries which have been started.

The dose of sulfonamide (preferably sulfathiazole) for children under the age of 1 year was 0.5 Gm. on admission given intravenously or intramuscularly, 4 Gm. orally in the first twenty-four hours, in three hourly doses, and three Gm. orally in each subsequent twenty-four hours, in three hourly doses. For ages 1 to 4 years the same dose was given on admission but the other doses were increased to 4.5 Gm. The termination of the sulfonamide treatment depended on the progress of the patient. The doses of penicillin for children under 1 year were 200,000 units systemically and 5,000 intrathecally on the first day and 5,000 intrathecally on the second, third and fourth days. For children aged 1 to 4 years the doses were 400,000 systemically and 10,000 intrathecally on the first day and 10,000 intrathecally on the second, third and fourth days. The penicillin treatment was terminated on the fourth day unless the clinical condition recurred or the cerebrospinal fluid showed recurrence, persistence of organisms, turbidity or a high protein level. Intraventricular or intracisternal injection was used if retrograde diffusion of penicillin was considered difficult or impossible. In consequence of later discussion and increased knowledge of penicillin administration, systemic penicillin was stopped and reliance placed entirely on intrathecal administration. As the inquiry progressed a few patients, judged to have failed to improve on one method, were transferred to the other method.

The following case is instructive. A boy aged 1 year was hospitalized on the fourth day of illness. He received penicillin for five days, pyrexia persisting for four days. The response to penicillin was most unsatisfactory, and nine days after admission he was put on a sulfathiazole regimen. The response to sulfathiazole was good, though there was temporary paralysis of the muscles of the back and neck. The illness was confirmed bacteriologically as meningococcic meningitis. By the twenty-seventh day of hospital treatment he was clinically and bacteriologically recovered.

Further Food Restrictions

Not only do severe food restrictions of the war continue, but the government has increased them in order to help to reduce the large gap between imports and exports. In particular it is desired to reduce dollar purchases of food, as dollar exchange is the great difficulty. At present each person is living on an average calory level of 2,870 daily, compared to 3,000 before the war. The Minister for Economic Affairs describes the new level as "highly unpleasant but not disastrous." The sugar allowance will be reduced from 10 to 8 ounces weekly. Bacon will remain at 1 ounce weekly. There will be a distribution of 66 eggs, compared with 58 in the previous year, but processed eggs for the baking industry will be reduced, so that one must expect fewer and less attractive cakes and buns. All importation of tobacco from the United States has been stopped. So far no detrimental effect on the health of the people can be traced to food restrictions. There is no starvation: a sensational statement to this effect in a medical journal has not been borne out. The hardship is that while people can get a sufficient quantity of food, they cannot get enough of the food they desire.

British Council for the Welfare of Spastics

For the investigation of spastic paralysis and the welfare of its often forgotten victims, the British Council for the Welfare of Spastics has been formed to act as an advisory and coordinating center for all activities directed toward the treatment, education, and training of the affected persons. The chairman is Professor J. M. Mackintosh, and the medical vice president is Lord Horder. On its council the Royal Colleges of Physicians and Surgeons, the British Medical Association, a large number of other medical organizations and bodies ancillary to medicine are represented, and six government departments have observers. In close association is the Scottish Council for the Care of Spastics. The Ministry of Education has drawn the

attention of local education authorities to the Council, stating that "the problem of the education and treatment of children suffering from spastic paralysis has not been hitherto attacked in this country except as part of the provision for physically handicapped children and in one or two instances in schools or units specially provided for the purpose. The Minister is of opinion that there is scope for investigation, research and treatment which the British Council is well equipped through its several committees to undertake."

No precise estimate can be given of the number of children in this country suffering from spastic paralysis, but 10,000 has been given on the basis of one survey. Of this number it is supposed that more than a quarter are in the mild category and able to attend ordinary schools. In the United States, where complete surveys have been carried out, it is said that on an average 7 children with cerebral palsy are born annually in every 100,000 of the population. The address of the British Council for the Welfare of Spastics is 34 Eccleston Square, London, S.W. 1.

PARIS

(From Our Regular Correspondent)

Oct. 30, 1947.

Industrial Medicine

The first law on accidents ascribable to work was passed in 1898 and was limited to compensation for damages. The prevention stage had not yet arrived. In time the teaching of industrial medicine was organized in the Paris, Lyons, Lille and Nancy faculties. The July 1942 law on the organization of medical service in an industry having a staff of more than 500 employees remained inoperative during the German occupation. Since the liberation a series of new laws has hastened the development of industrial medicine in France.

The Industrial Medicine Services

Organization of the Industrial Medicine Services was brought about by the law of Oct. 11, 1946 and the decree of November 28, which explain the necessity for supervision not only of the risks of contagion and of hygienic working conditions, but also of all the conditions of work from the psychophysiologic point of view necessitating the presence of the industrial physician in the workshop. The physician is the "engineer of man." He is to be consulted for the elaboration of any new technic of production. He is an advisor of the management, the Security Committee and the Social Service as regards the supervision of general hygiene and the adaptation of workmen to particular jobs. The physician shall perform compulsory examinations and issue a health certificate, which is to be appended to the employment card and kept by the employer for the information of the "Works Inspector." Heavy penalties are prescribed for falsification of certificates. An autopsy is to be performed every time the Social Security Fund deems it useful; should the family oppose it, they must furnish proof of the relation between the accident and the cause of death. Once a year all employees are to be examined; those under 18 years of age, every three months. Enterprises employing from 15 to 20 persons must procure the attendance of a physician for an hour monthly. An enterprise having 500 employees needs a special medical service. Less important enterprises must unite to organize common medical services. Commercial enterprises shall also engage a nurse for 500 employees and two for 1,500. In industrial enterprises there is to be one nurse for 200 employees and two for from 800 to 2,000. The independence of industrial physicians is guaranteed; they are not civil servants. The law provides a compulsory diploma of "industrial hygienist" for the exercise of this function. This diploma is issued by the faculties of medicine after a special course of studies in one of the nine Institutes of Industrial Hygiene in France. The Ministries of Labor and Social Security and the Minister of Public Health are entrusted with the execution of these laws, which come into force in October 1947 for industrial enterprises and in 1948 for commercial enterprises.

Prevention of Accidents and Occupational Diseases

The laws of Oct. 4, 1945 and Oct. 30, 1946 entrusted the administration of matters regarding injuries to workmen and occupational diseases to the social security organizations, as is the case with illness, maternity and the old age pension. This last law extended the benefit of insurance to all employees, with the single exception of agricultural enterprises. The accident occurring to an employee on his way to or from his place of employment is also considered as due to work. This insurance, previously optional, is now compulsory, and the payments to the Social Security Fund are to be made by the employers. The main point of the law of Oct. 30, 1946 consists in the organization of a system of prevention and of professional readaptation. It is the minister of labor who, after consulting the ministries of Health, Industrial Production, Public Works and Armaments, determines the general policy of prevention. The District Fund has at its disposal technical committees to which it can delegate its powers. To the general technical committees correspond the National Technical Committees (professional). Those who disburse the funds are to be guided by stastistics and precise studies of occupational accidents in their district. The national Social Security Funds for prevention will finance the work, as is the case with readaptation and professional reeducation. The social security system has also to deal with propaganda and education for prevention.

Miscellaneous

On the proposal of the Consultative Committee of the French Universities, Professor Coulouma, director of the Institute of Anatomy at Fribourg University (Switzerland) was appointed professor on the Toulouse faculty.

The creation of an Institute of Pharmacotechnics and Pharmacodynamics, attached to the Faculty of Pharmacy, has recently been approved by a ministerial order.

BERLIN

(From Our Regular Correspondent)

Nov. 3, 1947.

Outbreak of Infantile Paralysis in Berlin

A serious outbreak of infantile paralysis started in Berlin late in August. In the second half of September a smaller outbreak of the disease was reported from Dresden, in Russian-occupied Saxony, and from Hamburg in the British zone. In Berlin the disease struck mainly in the Russian and American sectors. A connection with malnutrition was not established, but crowded quarters seem to have had a decided influence on the case rate. From the beginning, the large portion of grownups among the diseased was a characteristic feature of the Berlin epidemic. The oldest patient was 62, the oldest fatality 58 years of age.

Soon after the outbreak of the epidemic all swimming pools in the city were closed. The schools were kept open, except for several classes. The fall opening of the American dependents' school was postponed until late in October; as a substitute, instruction in the higher grades was given by radio courses.

For the duration of the emergency all military personnel and all employees of military government and their families were strongly advised against using the German transportation system and against social contacts with Germans.

They were not permitted to attend German theaters, movie houses and concert halls. Vice versa, Germans were not allowed at American performances. One of the highlights of the season,

the Furtwängler concert at Titania Palace, the biggest music hall in the American sector of the city, with Yehudi Menuhin as soloist, which was originally planned as an American-German event, had to be given twice, once as an all-American, and the second time as an exclusively German affair.

All American athletic activities were discontinued in order to avoid overstrain, which may be a predisposing factor in contracting the disease. In fact, only 1 American case has been reported, which unfortunately was fatal: Sergeant Messmore, aged 30, died only two days after having been stricken.

Dr. Misgeld, a German physician, head of the department for internal diseases of the Auguste Victoria Hospital at Berlin-Schöneberg, where most patients were treated, undertook an experiment on himself which may prove important for further research: assuming that antibodies must be present in large amounts in the spinal fluid of the diseased, he injected into himself the spinal fluid of a poliomyelitis patient in order to prove that it is noninfectious. As expected, he did not take ill.

The American medical authorities in the United States and in Berlin gave active assistance in fighting the epidemic. Shortly after the outbreak, the Berlin U. S. Army Hospital (279th) loaned its iron lung to the Auguste Victoria Hospital. Later, four more iron lungs were flown in from the states. In mid-September Dr. Thomas Gucker from the Boston Children's Hospital flew to Berlin, accompanied by two specialist nurses, in order to advise and assist German physicians in their fight against poliomyelitis. Later, Dr. Albert Sabin joined them.

By mid-October, there were about 2,000 cases reported in Berlin, with a mortality rate of slightly below 10 per cent. From then on the infection rate began to decrease, but slower than expected. The epidemic is not quite over yet. The case rate in September, expressed as per 10,000 population per annum, was 2.7. The number of cases for September and October is greater than the total of poliomyelitis cases in the city in the last ten years.

135
47

The Nuremberg Trial Against German Physicians

Twenty of the 23 defendants tried before the American Military Tribunal at Nuremberg were doctors holding high ranking positions under the Nazi regime. Of the 23 defendants 7 were acquitted, 7 were sentenced to death, 5 to life imprisonment and 4 to prison terms ranging from ten to twenty years.

Their crimes consisted of experiments made with concentration camp inmates of all nationalities, particularly Jews, Poles, Russians and Gypsies, and with persons suffering from curable and incurable diseases, such as tuberculous and mental cases. The following types of experiments were undertaken:

A. *High Altitude.*—Experiments were carried out in a low-pressure chamber in which the atmospheric conditions and pressures prevailing at high altitudes (up to 68,000 feet) could be duplicated.

B. *Freezing.*—Subjects were forced to remain for several hours in ice water or were kept naked outdoors at temperatures below freezing.

C. *Malaria.*—Subjects were artificially infected and treated with various drugs to be tested.

D. *Mustard Gas.*—Wounds were deliberately inflicted on subjects, who were then infected with the gas.

E. *Sulfanilamide.*—Wounds deliberately inflicted were infected with different bacteria; circulation was artificially interrupted, wood shavings and glass were forced into them, and subsequent treatment was with sulfanilamide.

F. *Bone Muscle and Nerve Regeneration and Bone Transplantation.*—Sections of bones, muscles and nerves were removed from subjects.

G. *Seawater.*—Subjects were deprived of all food and given only chemically processed seawater.

H. *Epidemic Jaundice.*—Subjects were deliberately infected.

I. *Sterilization.*—Experiments were performed in order to develop a method suitable for sterilizing millions of persons with a minimum of time and effort.

J. *Spotted Fever.*—Experiments involved deliberate infections to keep the virus alive or to determine the effectiveness of different vaccines and chemicals; similar experiments were made with other infections.

K. *Poison.*—Poisons were secretly administered in food, or subjects were shot with poison bullets.

L. *Incendiary Bombs.*—Burns were inflicted with phosphorus matter taken from incendiary bombs.

These experiments were made for the benefit of the German armed forces.

Other charges were the ruthless extermination of many allegedly tuberculous Poles in occupied Poland, on the grounds of insuring the health and welfare of Germans there; the execution of "useless eaters," considered to be a burden to the German war machine, namely, the aged, insane, incurably ill or deformed—the so-called "euthanasia" program; and, particularly gruesome, the outright killing of 112 Jews for the purpose of completing a skeleton selection for the Reich University of Strassburg.

In weighing the evidence the court took great care in determining the rules applicable for permissible medical experiments on human beings. It stated that such experiments, if justified at all within the ethics of the medical profession, must yield results for the good of society that are unprocurable by other methods or means of study; and that certain basic principles must be observed in order to satisfy moral, ethical and legal concepts:

1. The voluntary consent of the human subject must be obtained.

2. The results for the good of society should be unprocurable by other means, and the experiment should not be random and unnecessary in nature.

3. The anticipated results, as based on animal experimentation and scientific knowledge of the problems, must justify the performance of the experiment.

4. All unnecessary physical and mental suffering and injury should be avoided.

5. No experiment should be conducted in which there is an a priori reason to believe that death or disabling injury will occur.

6. The degree of the risk should never exceed that determined by the humanitarian importance of the problem.

7. The subject of the experiment should be protected against even remote possibilities of injury, disability or death.

8. The highest degree of skill and care should be required of those who conduct or engage in the experiment.

9. During the course of the experiment the human subject should be at liberty to bring the experiment to an end.

10. During the course of the experiment the scientist in charge must be prepared to terminate the experiment at any stage, if he has probable cause to believe that a continuation is likely to result in injury, disability or death to the subject.

The court found that in the medical experiments which have been proved at the trial these ten principles were much more frequently honored in their breach than in their observance. In every instance appearing in the record, subjects were used who did not consent to the experiments. Indeed, in some experiments it was not even contended by the defendants that the subjects were volunteers. In no case was the experimental subject at liberty to withdraw from such experiment. In many instances experiments were performed by unqualified persons and were conducted at random for no adequate scientific reason and under revolting physical conditions. All the experiments were conducted with unnecessary suffering and injury, and few, if any, precautions were taken to safeguard the human subjects from the possibilities of injury, disability or death. In every one of the experiments the subjects experienced extreme pain or torture, and in most of them they suffered permanent injury, mutilation or death, either as a direct result of the experiments or because of lack of adequate follow-up care.

Obviously all these experiments involving brutalities, tortures, disabling injury and death were performed in complete disregard of international conventions, the laws and customs of war, the general principles of criminal law as derived from the criminal laws of all civilized nations, and Control Council Law No. 10 (Crimes against Humanity). Manifestly, human experiments under such conditions are contrary to "the principles of law of nations as they result from the usages established among civilized peoples, from the laws of humanity, and from the dictates of public conscience."

The Bad Nauheim Physicians' Convention

Reaction to the Nuremberg Trial

On June 14 and 15, 1947 a meeting of the association of the Medical Chambers of the three Western zones was held at Bad Nauheim (Hesse), which, shocked by the evidence introduced at the trial against the physicians in Nuremberg, passed a resolution in which it was recommended that every German physician, on receiving his license, take the following oath:

"I vow that I shall pursue the medical profession as a service to man and to his health, that I shall fulfil my medical duties conscientiously and that, in my medical work, I shall subordinate my personal advantage to the well-being of the sick.

I shall always stand up for the independence of my medical work, and as guidance for my actions I shall not recognize any other laws than those of humanity, of love of my fellow man and of unselfish readiness to help. I shall not yield to any other force than that of my medical conscience, and I shall observe medical ethics and professional regulations as well as the rules and experiences of the healing art.

As a student, I shall approach my medical teachers with esteem and reverence because of their responsibility, their knowledge and their experience in life; as an educator, I shall be an example to the younger medical generation and imbue it with the ideals of humanity and of medicine. In research, I shall be a servant of science and of truth, and I shall make my experiences and observations useful to suffering humanity, to my profession and to my fellow physicians.

In exercising my profession I shall strive to uphold my medical convictions and to devote myself fully to their realization; I shall not exercise the healing art for the sake of profit or fame.

Awed by the creative powers of nature, and trusting their oftentimes hidden forces, I shall preserve all human life; shall not interfere with its natural course, even at the request of the sick; shall protect and guard the unborn life, and shall never destroy the power of procreation without compelling reason.

I shall subject neither a healthy nor a sick person, against his will or even with his consent, to means or methods that may become harmful or injurious to his body, his soul or his life.

I shall treat the sick person with consideration, sympathy and respect for his suffering. I shall not divulge what he confides to me, and I shall keep as a professional secret all that comes to my knowledge with respect to him and his ailment.

I shall give particular care to the needy and the weak, promote all measures for the safeguarding and keeping of health and join hands with my fellow physicians in the support of their endeavors.

Thus, I shall live according to the ideals of the healing art and of humanity, and I shall always be conscious of my high responsibility in order to prove myself, within and outside of my profession, worthy of the esteem and the trust which my profession calls for."

The Hunger Resolution

The main topic of the Bad Nauheim convention was the state of nutrition in Germany. A standing nutrition committee was established at Düsseldorf (British zone) for the purpose of dealing with this serious problem in the future. A resolution was passed in which the attention of world public opinion was called to the consequences of Germany's chronic hunger with respect to the individual, the nation, the world and the security of mankind. The resolution calls on world conscience not to permit any further deterioration of the physique of the German nation. Its closing words are: "The German medical profession is of opinion that the most elementary right of the German nation is the right to survive. No nation may be denied the claim for wholesome and sufficient nourishment. Humanity demands the subordination of conflicting interests to this absolute and eternal human right."

MADRID

(From Our Regular Correspondent)

Nov. 7, 1947.

National Congress of Industrial Medicine, Hygiene and Safety

The National Congress of Industrial Medicine, Hygiene and Safety was held in Valencia from May 16 to 31 this year and was presided over, on behalf of the minister of the department, by F. Rodriguez Fornos, rector of Valencia University and professor of medical pathology in the city. The secretary of the congress was Dr. L. Rodriguez Candela, professor of medical pathology of Valladolid University, who is a young research worker. In his inaugural speech Professor Rodriguez Fornos dealt with the social evolution of medicine. The first paper read was by Professor M. Bermejillo, now holder of the chair of general pathology in the University of Madrid, and Dr. A. de la Grande, who dealt jointly with "Rheumatism as a Social Ailment," going amply into the subject and suggesting that rheumatic fever should be made a notifiable disease in Spain with a view to facilitating the fight against it. As a result of the conclusions passed in consequence of this debate, the Spanish authorities have taken up with energy and enthusiasm the fight against rheumatic fever, with the firm support of the Minister of the Interior and Public Health.

The second report, "Lighting in Places of Work," was presented by Dr. R. Ibarrola Monasterio, the present director of the National Psychotechnics Institute (founded by Dr. J. Germain) and by don C. Cebrian Martinez, professor of physics.

The last report, "Protection in the Handling of X-Ray Apparatus and Radioactive Substances," was entrusted to Carlos Gil y Gil, professor of radiology at Madrid University, and Professor J. Palacios Martin, of the faculty of science. Both submitted practical conclusions of social interest.

Apart from these reports and the numerous communications received in the various sections of the congress, lectures on scientific subjects were given. Dr. C. Jimenez Diaz, professor of medical pathology at Madrid University and director of the Institute of Medical Research, gave a learned talk on "The Importance of Nutrition Studies from the Social Point of View," in which he set forth the experience of his school in the last few years and gave statistical data. Professor F. Enriquez de Salamanca, *doyen* of the Faculty of Medicine of Madrid, in which he is professor of medical pathology, gave a masterly lecture on "Fatigue and Tiredness," expounding in detail the whole physiopathologic scale of the process with a wealth of experimental data. Dr. E. C. Vigliani, of Milan, Italy, spoke on "Silicosis," telling about his own work in the anatomicopathologic and statistical field with regard to this problem in Italy. The director of the National Provident Institute, don L. Jordana de Pozas, spoke on "The Doctor and Social Security," insisting especially on the benefits of the Spanish health insurance act.

At the closing session the executive president of the congress, Dr. A. Lafuente y Chaos, director of the National Institute of Industrial Medicine, Hygiene and Safety, spoke on "New Trends in Medicine," surveying the physical, intellectual and affective causes of individual lack of balance in face of work, proposing a Spanish style of social medicine.

Finally, Professor Rodriguez Candela read the congress's resolutions, as follows: (1) the creation in Spain of social medicine for workers as a biologic sector of social security; (2) the connection of the direction of this work with the National Institute of Industrial Medicine, Hygiene and Safety; (3) the incorporation into this organization of all the new services that may be created; (4) the founding of an association of doctors of insurance corporations to study their financial problems as affected by the new aspect of professional consultation, and (5) the advising of the rapid setting in operation by the government of the fight against rheumatic fever.

Correspondence

NOMENCLATURE OF FRACTURES

To the Editor:—In connection with Dr. H. Earle Conwell's communication (THE JOURNAL, October 25, p. 531) the following is submitted for the consideration of those concerned with fracture nomenclature.

Generally speaking, it is desirable that a nomenclature use terms which are self-explanatory and which need little or no agreement as to what they mean. Consequently, if the terms "simple fracture" and "compound fracture," which are meaningless unless defined and agreed on, could be replaced by better terms much would be gained.

Erich Lexer, the late Munich surgeon, was well aware of this; he objected against the corresponding German terms of "einfache" and "komplizierte Fraktur," and he insisted in the use of "geschlossener" and "offener Bruch," i. e. "closed fracture" and "open fracture." Undoubtedly, these terms tell, without any explanation or agreement as to meaning, whether there is or has been contact between the fractured bones and the outside world.

These terms, *open fracture* and *closed fracture*, should be adopted as the primary subdivisions of fractures.

Other terms, e. g., *comminuted* (*simple* would be the logical counterpart for this); *transverse*, *spiral* and *oblique*, would serve to further subdivide and classify. It appears to me that terms like *severe* or *with extensive damage to soft tissues* would be preferable to the term *complex*, because this term also, just like *compound*, requires definition and acceptance by agreement, if it is to be understood generally.

HEINRICH LAMM, M.D., La Feria, Texas.

MEDICAL STATESMANSHIP

To the Editor:—A short time ago, Dr. Bortz, the distinguished President of the American Medical Association, made an address in Washington, D. C., in the course of which he appealed to doctors to take up the duties of statesmen.

As one who has done this, let me add my voice to his appeal. There is, it seems to me, a highly desirable common bond of humanitarianism between the members of our profession, irrespective of nationality, and surely there was never greater urgency or greater opportunity to bring to humankind the benefit of that atmosphere.

The traits of patience, understanding and perseverance that are to be found almost always in a successful doctor are likewise needed in politicians and statesmen. Unhappily, too often they are lacking.

I confess my dismay that not always are the fruits of one's efforts in the diplomatic field as readily apparent as in the practice of medicine. But humanity suffers social and political ills quite as terrifying as those we treat by surgery, and some medium must be found for conquering these plagues, too.

For a great many years I have felt that doctors, by virtue of their indoctrination and their constant ministration to those in pain and sick, are peculiarly equipped to cope with these problems on the political and diplomatic level.

Dr. Bortz's plea, therefore, was both gratifying and reassuring to me.

JOSÉ ARCE, M.D., Lake Success, N. Y.
Argentine Ambassador to the United Nations.

ALLERGIC PERITONITIS

To the Editor:—Having recently returned from the Philippines, I was particularly interested in the article in THE JOURNAL, July 19, on Allergic Peritonitis by Sison and others of the Philippine University. There are many points of comparison between the case described and a series of cases reported by Siegel in the *Annals of Internal Medicine* (**23**:1 [July] 1945) under the title Benign Paroxysmal Peritonitis. In both there is strong evidence of an allergic factor in the etiology of the syndrome, allergic histories in the patients and their families being of regular occurrence. The nature of the symptoms, severe abdominal pain often localized to the right lower quadrant with fever, led to several laparotomies, all noteworthy for the lack of positive findings other than an exudate containing an overabundance of eosinophils. The tendency of the attacks to recur periodically was a prominent feature of both reports, the association with pregnancy being an unusual feature of the more recent report.

While the extent of the destruction which occurred in the Philippines during the war is well known, it may be less widely known that the Philippine University, General Hospital and Bureau of Sciences were in one of the most severely damaged areas. A number of my fellow medical officers and I visited the Philippine medical school and general hospital on several occasions. We were very favorably impressed with the morale of the staff and students and the caliber of the medical practice. It is a pleasure to see in the article by Sison and others further evidence of their resurgence.

FELIX A. SIEGMAN, Captain, M. C.,
Camp Kilmer, New Jersey.

ESTROGENS AND UTERINE CANCER

To the Editor:—There is admittedly difference of opinion and conflicting clinical and experimental evidence as to the possible role of estrogenic hormones in the production of uterine cancer. There can be no difference of opinion, however, as to the harmful effects of estrogens when their ill advised use delays the diagnosis of uterine cancer and permits an early curable lesion to advance to a stage at which cure is no longer possible.

Bleeding is usually the first sign of uterine cancer, and it is perhaps not surprising that the patient, particularly at the time of her menopause, often confuses pathologic bleeding with functional disturbances of menstruation. It is indeed a tragedy when her physician also confuses bleeding with abnormal menstruation and embarks on a program of estrogen therapy without first making certain that he is not dealing with uterine cancer. To realize that such a diagnostic error is by no means a rarity, one has only to review the histories of even a moderate number of patients suffering from an advanced stage of uterine cancer.

A constant stream of colorful pamphlets advertising estrogens pours from the mail onto the desk of every physician. How seldom they contain a word of caution that the patient's symptoms may be due to cancer.

One might wish that on every ampule and on every package of tablets containing estrogens there could be printed in red letters:

"DOCTOR, ARE YOU SURE YOUR PATIENT DOES NOT HAVE CANCER?"

C. J. ATTWOOD, M.D.,
Samuel Merritt Hospital,
Oakland, Calif.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Workmen's Compensation Acts: Right of Employee to Refuse to Undergo Myelogram Test.—The plaintiff was granted a compensation award following an accidental injury sustained in the course of his employment with the defendant company. On appeal to the Superior Court the defendant was granted a petition for review, so the plaintiff appealed to the Supreme Court of Rhode Island.

Sometime after the plaintiff's accident the defendant requested the plaintiff to submit to a myelogram test, the object of which was to determine whether or not a ruptured intervertebral disk was the cause of a sciatic condition from which the examining physician believed the plaintiff was suffering. As described by one of the medical witnesses, the test requires hospitalization, the patient entering in the morning, having the test about noontime and leaving sometime the next day. The patient, while under a local anesthetic, is placed on the fluoroscope or x-ray table and is given a lumbar puncture. While the needle is inserted in the spine a gage is placed on the needle, various readings are taken and thereafter fluid is withdrawn and sent to the laboratory for chemical examination. Then an opaque solution is injected into the spine, the needle remaining in place, the room is darkened and the patient is tilted back and forth. The opaque solution in the spine, moving in either direction, works like the bubble in a carpenter's level. If there is nothing pressing on the spinal tube, the solution will run up and down easily, but if there is some obstruction the solution reveals such obstruction by passing around it. A camera-like arrangement on the x-ray table can be adjusted to take a picture of any place in the patient's spine desired by the doctor, especially a picture of the obstruction, if any appears. These pictures are developed immediately and checked with the visual showing in the fluoroscope. After the test is completed the patient is tipped so that the solution goes directly under the needle and is removed with a syringe. As to the possible effect of the test on a patient, the doctor testified that in some instances it gives a headache, which sometimes continues for a week depending on the follow-up treatment. In reply to the question, Do you know of cases in which the myelogram test was followed by either total or partial paralysis? he also stated, "I don't know a case. I have heard . . . of such cases. There is an occasional case here and there, something like you describe happens, but it also happens with anesthesia, it also happens in anything; and because of that I think I am within my rights in saying that the myelogram is not dangerous because of the very rare instances that these things happen." In addition the doctor testified that when the needle is injected into the spine it comes in close proximity to the nerves and probably pushes them aside by coming in contact with them, and he admitted that it was possible that the needle might puncture a nerve.

The defendant contended that, under the provisions of the workmen's compensation act, the plaintiff was bound as a matter of law to submit to the myelogram test. The plaintiff, however, contended that the requirement of the statute is to submit only to an examination but not to a test that is in effect an operation without any intended curative results. The section of the statute applicable reads in part as follows: "The employee shall, after an injury, at reasonable times during the continuance of his disability, if so requested by his employer, submit himself to an examination by a physician or surgeon authorized to practice medicine under the laws of the state, furnished and paid for by the employer. . . . 'If such employee refuses to submit himself for any examination provided for in this chapter, or in any way obstructs any such examination, his right to compensation shall be suspended and his compensation during such period of suspension may be forfeited.'" The controlling question in the instant case is the extent to which an injured employee must submit himself for an "examination" as contemplated by this statute.

The trial judge held that it was reasonable to require the plaintiff to submit himself to the myelogram test. "It is our opinion," said the Supreme Court, "that in making this decision he committed an error of law in misconstruing the word 'examination,' as used in the statute, by giving such word too broad and comprehensive a meaning. In determining its meaning in this section the problem is to find, if possible, the legislative intent. We are of the opinion that in using the term 'examination' in this connection the legislature had in mind the ordinary physical examination customarily given by doctors, together with such tests as are reasonably connected therewith and do not involve unnecessary risk to the patient's health. If the legislature had intended that an injured employee should be required to submit to such a test, it would have expressed that intent in more specific or comprehensive language and would not have left it to be inferred from the term 'examination.' In our opinion such test went beyond the reasonable scope of an 'examination' as contemplated by the present language in the statute, and the plaintiff did not act unreasonably in refusing to submit himself thereto." The test, continued the Supreme Court, was admittedly merely to verify and assist in confirming a diagnosis already made and would in no way relieve or cure the patient of his injury. The test was not without considerable risk to the patient's bodily health, and appears to be operative in its nature without any possible direct curative effect. Accordingly the judgment in favor of the defendant was reversed.—*Cranston Print Works v. Pascatore, 53 A. (2d) 452 (R. I., 1947).*

Workmen's Compensation Acts: Employee's Right to Refuse to Undergo an Exploratory Operation.—The plaintiff was struck in the abdomen during the course of his employment with the defendant corporation and received a compensation award from the department of labor and industry. From the granting of this award the defendant appealed to the Supreme Court of Michigan.

About five months after the plaintiff's accident, the defendant offered to finance an operation on the plaintiff, which offer the plaintiff refused. On appeal, the defendant contended, among other things, that the plaintiff's refusal of its offer of surgery was not reasonable and should bar his alleged right to compensation. There is no showing, said the Supreme Court, that the proffered operation was not one fraught with danger to the plaintiff's life or health, or that he might not incur extraordinary suffering in consequence thereof. Nor was plaintiff assured that the operation offered a reasonable prospect of relieving or correcting his incapacity. Instead the operation was, as the department found, purely exploratory; by it the defendant hoped to discover the cause of the plaintiff's incapacity. The plaintiff's refusal under the circumstances to submit to the operation, the Supreme Court concluded, did not constitute ground for denying compensation. The applicable rule of law, continued the Supreme Court in quoting a prior Michigan case, is as follows: "If the operation is not attended with danger to life or health, or extraordinary suffering, and if, according to the best medical or surgical opinion, the operation offers a reasonable prospect of restoration or relief from the incapacity from which the workman is suffering, then he must either submit to the operation or release his employers from the obligation to maintain him." Such an operation, the Supreme Court concluded, was not tendered the plaintiff in this case. The award in favor of the plaintiff was therefore affirmed.—*Dyer v. General Motors Corporation, Etc., 27 N. W. (2d) 533 (Mich., 1947).*

V 1
194

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

NATIONAL BOARD OF MEDICAL EXAMINERS EXAMINING BOARDS IN SPECIALTIES

Examinations of the National Board of Medical Examiners and the Examining Boards in Specialties were published in THE JOURNAL, Nov. 22, page 790.

BOARDS OF MEDICAL EXAMINERS

ALABAMA: *Examination.* Montgomery, June 22-24, 1948. Sec., Dr D. G. Gill, 519 Dexter Ave., Montgomery 4.

COLORADO: * Denver, Jan. 6-9. Final date for filing application is Dec. 20. Sec., Dr. J. B. Davis, 831 Republic Bldg., Denver 2.

CONNECTICUT: * *Homeopathic Examination.* Derby, March 9-10. Sec., Dr. J. H. Evans, 1488 Chapel St., New Haven.

DELAWARE: *Examination.* Dover, Jan. 13-15. *Endorsement.* Dover, Jan. 20. Sec., Dr. J. S. McDaniel, 229 S. State St., Dover.

DISTRICT OF COLUMBIA: * *Endorsement.* Washington, Dec. 8. Sec., Comm. on Licensure, Dr. G. C. Ruhland, 4130 Municipal Bldg., Washington.

HAWAII: *Examination.* Honolulu, Jan. 12-15, 1948. Sec., Dr. S. E. Doolittle, 881 S. Hotel St., Honolulu, T. H.

IDAHO: Boise, Jan. 13-15. Sec., Miss Estella S. Mulliner, 355 State House, Boise.

INDIANA: *Examination.* Indianapolis, June 1948. Sec., Board of Medical Registration and Examination, Dr. Paul R. Tindall, K of P Bldg., Indianapolis.

IOWA: * *Examination.* Des Moines, Dec. 1-3. Act. Dir., Div. of Licensure, Dr. Walter R. Bierring, 1027 Des Moines St., Des Moines.

KANSAS: Topeka, Dec. 3-4. Sec., Board of Medical Registration and Examination, Dr. J. F. Hassig, 903 N. 7th St., Kansas City.

LOUISIANA: New Orleans, Dec. 4-6. Sec-Treas., Dr. Roy B. Harrison, 1507 Hibernia Bank Bldg., New Orleans.

MARYLAND: *Medical Examination.* Baltimore, Dec. 9-12. Sec., Dr. Lewis P. Gundry, 1215 Cathedral St., Baltimore. *Homeopathic Examination.* Baltimore, Dec. 9-10. Sec., Dr. J. A. Evans, 612 W. 40th St., Baltimore.

MINNESOTA: * Jan. 20-22. Sec., Dr. J. F. DuBois, 230 Lowry Medical Arts Bldg., St. Paul 2.

MISSISSIPPI: *Endorsement.* Jackson, Dec. 1947. Asst. Sec., State Board of Health, Dr. R. N. Whitfield, Jackson.

MISSOURI: *Examination.* Kansas City, Jan. 19-21. Exec. Sec., Mr. John A. Hailey, P. O. Box 4, State Capitol Bldg., Jefferson City.

NEBRASKA: * *Examination.* Omaha, Dec. Dir., Bureau of Examining Boards, Mr. Oscar F. Humble, 1009 State Capitol Bldg., Lincoln.

NEW HAMPSHIRE: *Examination.* Concord, March 11-12. Sec., Board of Registration in Medicine, Dr. John S. Wheeler, 107 State House, Concord.

NEW JERSEY: *Examination.* Trenton, June 15-17. Sec., Dr. E. S. Hallinger, 28 W. State St., Trenton.

NEW YORK: *Examination.* Albany, Buffalo, New York, Syracuse, Feb 16-19. Sec., Dr. J. L. Lochner, Jr., Education Bldg., Albany.

NORTH CAROLINA: *Endorsement.* Pinehurst, Jan. 12. Sec., Ivan Procter, 226 Hillsboro St., Raleigh.

NORTH DAKOTA: Grand Forks, Jan. 6-9. Sec., Dr. G. M. Williamson, 4½ S. Third St., Grand Forks.

OHIO: *Examination.* Columbus, Dec. 2-4. Sec., Dr. H. M. Platter, 21 W. Broad St., Columbus.

OREGON: *Examination.* Portland, Jan. 21-23. Final date for filing application is Jan. 7. *Endorsement.* Portland, Jan. 23-24. Final date for filing application is Jan. 9. Admin., Board of Higher Education, Miss L. M. Conlee, Univ. of Oregon, Eugene.

PENNSYLVANIA: *Examination.* Harrisburg, Jan. 1948. Acting Sec., Board of Medical Education and Licensure, Mrs. M. G. Steiner, 351 Education Bldg., Harrisburg.

RHODE ISLAND: *Examination.* Providence, Jan. 8-9. Chief, Div. of Prof. Regulation, Mr. Thomas B. Casey, 366 State Office Bldg., Providence.

SOUTH DAKOTA: * Pierre, Jan. 20. Sec., State Board of Health, Dr. Gilbert Cottam, Capitol Bldg., Pierre.

TENNESSEE: *Examination.* Memphis, Dec. 17-18. Sec., Dr. H. W. Qualls, 1635 Exchange Bldg., Memphis.

UTAH: *Examination.* Salt Lake City, June, 1948. Asst. Dir., Department of Registration, Miss Rena B. Loomis, 324 State Capitol Bldg., Salt Lake City.

VIRGINIA: Richmond, Dec. 4-6. Sec., Dr. K. D. Graves, 306 Medical Arts Bldg., Roanoke.

WASHINGTON: *Examination.* Jan. Sec., Dept. of Licenses, Miss Virginia Wotherspoon, Olympia.

WEST VIRGINIA: Charleston, Jan. 12-14. Comm., Public Health Council, Dr. N. H. Dyer, State Capitol, Charleston 5.

WYOMING: *Examination.* Cheyenne, Feb. 2. Sec., Dr. G. M. Anderson, Capitol Bldg., Cheyenne.

* Basic Science Certificate required

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

ARIZONA: Dec. 16. Sec., Mr. Francis A. Roy, Science Hall, University of Arizona, Tucson.

COLORADO: *Examination.* Denver, Dec. 17-18. Sec., Dr. Esther B. Starks, 1459 Ogden St., Denver.

IOWA: Des Moines, Jan. 13, April 13, July 13, Oct. 12. Sec., Dr. Ben H. Peterson, Coe College, Cedar Rapids.

MICHIGAN: *Examination.* Ann Arbor and Detroit. Jan. 9-10. Sec., Miss Eloise LeBeau, 101 N. Walnut St., Lansing.

MINNESOTA: *Examination.* Minneapolis, Jan. 6-7. Sec., Dr. Raymond N. Bieter, 105 Millard Hall, Univ. of Minnesota, Minneapolis 14.

NEBRASKA: *Examination.* Omaha, Jan. 13-14. Dir., Dept. of Health, Mr. Oscar F. Humble, Room 1009, State Capitol Bldg., Lincoln 9.

OKLAHOMA: Spring 1948. Sec., Dr. Frank Clinton Gallaher, 813 Braniff Bldg., Oklahoma City.

OREGON: *Examination.* Portland, Dec. 6. Admin., Mr. C. D. Byrne, Univ. of Oregon, Eugene.

SOUTH DAKOTA: Aberdeen, Dec. 5-6. Sec., Dr. G. M. Evans, Yankton.

WASHINGTON: *Examination.* Jan. Sec., Dept. of Licenses, Miss Virginia Wotherspoon, Olympia.

WISCONSIN: *Examination.* Milwaukee, Dec. 6. Sec., Prof. W. H. Barber, Scott and Watson Sts., Ripon.

Medical Motion Pictures

FILM REVIEW

Doctor in Industry. 16 mm., black and white, sound, 2,000 feet (1 reel), showing time sixty minutes. Produced in 1946 by General Motors Corporation. Procurable on loan from the Department of Public Relations, General Motors Corporation, 3044 West Grand Boulevard, Detroit 2.

This film, professionally produced and with an excellent staff, is a fictional story—but based on actual experience. In an entertaining way, the picture tells the story of Kenneth W. Randall, M.D., and his wife, Martha. The picture portrays the story of industrial medicine, its growth and development, and how, in cooperation with nonindustrial physicians, it is contributing steady improvement in the health, safety and general well-being of employees in industry.

This film is a full length dramatic type photoplay and was sponsored by General Motors for the purpose of honoring those who have struggled to bring preventive medicine to industry. This picture should be entertaining to any audience and of special interest to those connected with medicine in industry. Recommendations are that it be shown as a routine part of any course in either high school or college in the general field of preventive and industrial medicine or public health. Although primarily geared to the lay level, nevertheless medical societies may find this film interesting, instructive and entertaining.

NEW MOTION PICTURE ADDED TO A. M. A. FILM LIBRARY

Training for the Disabled. Produced in 1945 by St. Loyes College and Queen Elizabeth's College in cooperation with the Ministry of Labour and National Service, London. 16 mm., black and white, sound, 875 feet, showing time twenty minutes. Procurable on loan from Motion Picture Library, American Medical Association, 535 North Dearborn Street, Chicago 10.

This film was issued by the British Information Service. As its title indicates, the film is planned to disseminate information pertaining to the training of disabled British military veterans.

A British veteran, John Day, is introduced to the Rehabilitation Center and shown the various occupations suitable for his type of disability. The training course lasts for six months. Persons with different types of disabilities ranging from hearing defects and eye defects to loss of one or both extremities and various combinations of these disabilities are shown. Methods used to train muscles and senses not generally utilized are illustrated. Self confidence is established by playing games such as cricket and soccer as well as by boxing. The film points out that there are a great variety of jobs in English industry for disabled persons.

The photography is satisfactory and the British narration is clearly understood. This film is especially recommended for groups interested in the rehabilitation programs.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1937 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied with stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted.

American Journal of Public Health, New York

37:1089-1246 (Sept.) 1947

*Evaluation of Use of BCG in Prevention of Tuberculosis in Infants and Children. M. I. Levine.—p. 1089.
Experience and Lessons from Emergency Maternity and Infant Care. N. Sinai.—p. 1097.
Next Steps in Industrial Hygiene Research. P. A. Neal.—p. 1104.
Present Status of Vaccination Against Influenza. T. Francis Jr., Chairman.—p. 1109.
Food Values of Dairy Products as Affected by Methods of Handling in Production, Distribution, and Use: Riboflavin, Thiamin, Vitamin A. Ethel A. Martin, Chairman.—p. 1113.
Recommended Procedure for Bacteriological Examination of Shellfish and Shellfish Waters. J. Gibbard, Chairman.—p. 1121.
Is Aviation Medicine Industrial Hygiene? E. G. Reinartz.—p. 1130.
Program Audit—Device for Reflecting Public Health Performance. Evelyn Flook and J. W. Mountin.—p. 1137.
Evaluation of Local Health Work. R. P. Kandle.—p. 1143.
Penicillin in Treatment of Infectious Bovine Mastitis. C. S. Bryan. —p. 1147.
Oral Environment and Fluorine. G. J. Cox.—p. 1151.
Signs of Progress in Dental Health. A. O. Gruebbel.—p. 1160.
Epidemic of Diarrhea in New-Born Nursery Caused by Pseudomonas aeruginosa. C. A. Hunter and P. R. Ensign.—p. 1166.

BCG in Prevention of Tuberculosis.—On the basis of over 5,000,000 inoculations of human beings with BCG vaccine, Levine thinks that it is entirely safe. Numerous favorable reports on the efficacy of BCG vaccine in the prevention of tuberculosis have been published, but with few exceptions these studies have been inadequately controlled. The consistency of favorable reports seems to indicate that the vaccine has a certain degree of efficacy. Continuance of BCG research is essential to determine the degree of its effectiveness. Further knowledge is needed concerning the duration of immunity, the necessity for reinoculations, the significance of the tuberculin reaction following BCG vaccination, the efficacy of the vaccine in different racial groups and the potency and efficacy of the vaccine when prepared with various culture mediums.

Canadian Journal Public Health, Toronto

38:361-410 (Aug.) 1947

School Health Services: Panel Discussion. G. F. Amyot and others. —p. 361.
Public Health Nursing Services in England. Katherine C. Watt.—p. 376.
Nutrition in War and Peace. F. G. Boudreau.—p. 381.
*Diagnosis of Rheumatic Fever and Rheumatic Heart Disease. Part I. J. D. Keith.—p. 390.

Diagnosis of Rheumatic Fever and Rheumatic Heart Disease.—Keith defines rheumatic fever as a clinical syndrome, the chief manifestations of which are heart disease, arthritis, chorea and subcutaneous nodules. The relationship of these manifestations is established by their frequent appearance together and particularly because of the development of the characteristic form of heart disease in association with any of the other manifestations. During the war it was evident that no agreement existed on how to diagnose the disease; each of the three services had different criteria for diagnosis. Keith's points in diagnosis are not final but are offered as a basis for argument in the hope that more universal agreement may be reached on the diagnostic criteria. Involvement of the heart is the most important aspect of rheumatic fever, but it has several subdivisions such as pericarditis, myocarditis, valvular disease in its various forms, enlargement of the heart and congestive heart failure.

Indiana State Medical Assn. Journal, Indianapolis

40:715-810 (Aug.) 1947

Treatment of Allergic Symptoms with New Antihistamine Drug. J. D. Peirce and M. H. Mothersill.—p. 739.
Chronic Heart Disease and Heart Failure. A. N. Ferguson.—p. 744.
Wartime Advances in Anesthesiology. K. C. McCarthy.—p. 747.
Practical Considerations of Small Bowel Obstructions. H. D. Tripp. —p. 752.
Review of Ten Years of Cesarean Sections at Elkhart General Hospital. G. E. Bowdoin.—p. 756.

40:811-954 (Sept.) 1947

*Anemia and Cardiac Cirrhosis from Rheumatic Heart Disease. J. L. Eisaman.—p. 835.
Practical Office Methods of Diagnosis and Management of Sterility. W. J. Reich, J. L. Wilkey and M. J. Nechtow.—p. 842.
Mediastinal Tumors and Cysts. J. V. Thompson.—p. 848.
Management of Diabetes Mellitus. J. H. Warvel.—p. 854.
Cirrhosis of Liver: Prospects for Earlier Diagnosis and Treatment. E. F. Boggs.—p. 858.
Cirrhosis of Liver: Laboratory Aids. I. W. Wilkens.—p. 864.
Intestinal Obstruction. P. Thorek.—p. 866.
Admission Chest Survey in General Hospital Preliminary Report. H. C. Ochsner.—p. 869.
Ear, Nose, and Throat Office Practice for General Practitioner. F. McK. Ruby.—p. 871.
*Tularemia in Indiana Including Reported Industrial Outbreak. J. W. Jackson.—p. 872.

Anemia and Cardiac Cirrhosis from Rheumatic Heart Disease.—Eisaman presents histories of 6 patients with rheumatic heart disease and an important secondary effect, anemia. Mitral stenosis produces a back pressure. After a few years, the right ventricle will fail. Because of the proximity of the hepatic veins and inferior vena cava to the right auricle, any backward pressure is first felt in the portal system. The liver and spleen are first affected. The part played by the liver in the development of anemia is well known. Bile aids in the absorption of iron from the gastrointestinal tract. After absorption the iron is stored in the liver and spleen. If the liver is so damaged by cardiac cirrhosis that it cannot store iron or the antianemic factor, it is contributory to anemia. In most instances here it was a microcytic hypochromic anemia, but in cases of macrocytic anemia response came with liver therapy rather than iron. If the heart and cardiovascular system are not placed in the best condition, the anemia is not being treated properly. The giving of iron when liver should be used and vice versa is poor practice. The author thinks that this type of anemia which is connected with cardiac cirrhosis should be classified as a syndrome.

Tularemia in Indiana.—Jackson reviews data on 616 cases of tularemia which were observed in Indiana between 1928 and 1945. The incidence of the disease is highest in November, December and January. This is explained by the fact that hunting rabbits is legal from November 10 to January 10. In analyzing some of the infections acquired from rabbits it was found that dressing the animal and preparing it for cooking were the most frequent methods of acquiring infection. There is need for education on this hazard. When tularemia developed in employees of a firm which makes fertilizer and extracts fats from the carcasses of animals, it was suspected that tularemia might be an industrial hazard in plants of this type. But study revealed that the men had hunted intensively. Further studies made in fertilizer plants indicated that tularemia is apparently not an occupational hazard in rendering plants.

Kansas Medical Society Journal, Topeka

48:393-440 (Sept.) 1947

Placental Blood Loss. L. D. Odell.—p. 393.
Presentation of 14 Cases Seen at Sedgwick County Tumor Clinic.—p. 395.
*Poliomyelitis, Second Attack—Report of a Case. G. Ashley.—p. 406.

Second Attack of Poliomyelitis.—Ashley reports the case of a boy, who had one attack of poliomyelitis at the age of 16 and another six years later. In the first attack both legs had been involved. Convalescence was drawn out over several months, but the patient recovered with only residual weakness in the muscles of the right thigh. The lower extremities were not involved in the second infection, only the right arm being affected. Howe and Bodian's theory as applied here would mean that some portals had been closed during the initial infec-

tion, thus leaving an effective immunity in that region. Other portals would remain; however, in this case the pulmonary tree must be considered, as there was clinical and roentgenologic evidence of infection in the upper part of the right lung.

Nebraska State Medical Journal, Norfolk

32:341-378 (Sept.) 1947

Painful Hip of Adults: Prevention and Treatment. R. K. Ghormley —p. 343.
Thrombophlebitis and Pulmonary Embolism: Responsibility of Surgeon and Hospital Staff. R. R. Best.—p. 350.
Surgical Management of Dysmenorrhea. L. O. Hoffman.—p. 353.
Diagnosis and Treatment of Latent and Active Neurosyphilis. P. T. Cash.—p. 356.
Aspiration of Amniotic Fluid Content by the Newborn. J. R. Schenken. —p. 362.
Analysis of Elderly Primiparas. S. L. Thierstein.—p. 365.

New York State Journal of Medicine, New York

47:1823-1934 (Sept. 1) 1947

Influence of Stilbamidine Upon Kidney Function, Liver Function, and Peripheral Blood in Multiple Myeloma: Neurologic Sequelae of Stilbamidine Therapy. H. Arai and I. Snapper.—p. 1867.
Hemolytic Disorders: Recent Advances in Diagnosis, Prevention, and Treatment. L. E. Young.—p. 1875.
Clinical Manifestations of Hodgkin's Disease. J. H. Talbott.—p. 1883.
Office Management of Neurodermatoses. G. M. Lewis.—p. 1889.

47:1935-2046 (Sept. 15) 1947. **Partial Index**

Survey of Ragweed Pollination in New York Metropolitan District in 1946. E. H. Walzer, J. Sherman, R. A. Chait and M. Walzer. —p. 1979.
Common Sense in Infant Feeding and Use of Vitamins. A. C. Silverman.—p. 1987.
*Study of Certain Pathologic Processes with Aid of Isotopic Hydrogen. D. Stetten Jr.—p. 1991.
*Treatment of Essential (Idiopathic) Herpes Zoster by Thiamin Potentiated with Neostigmin. S. Waldman and L. Pelner.—p. 1997.

Isotopic Hydrogen in Study of Pathologic Processes.—Stetten and his collaborators studied the origin and fate of the reservoirs of carbohydrate and fat in the intact animal, a study in which they have had frequent occasion to use isotopic tracers. When deuterium oxide, heavy water, is added to the body fluids of an animal, no perceptible change occurs in the functioning of that animal. However, from that moment on, when stable hydrogen is introduced into the molecules of any synthesized compound deuterium will appear in that compound. The authors present analytic data for liver and muscle glycogens and liver fatty acids in normal adult rats on high carbohydrate diets. Each day some 70 per cent of liver glycogen and some 20 per cent of muscle glycogen are replaced by newly synthesized material in the normal adult rat. Stated another way, the half life of liver glycogen is about one day, of muscle glycogen about three to four days. Combining these figures with the quantities of glycogen known to occur at these sites, one may calculate readily the weight of glycogen synthesized and destroyed daily by these rats. A much larger fraction of the carbohydrate of the diet of the rat is consumed each day in the maintenance of body fat than in the maintenance of body glycogen stores. Liver glycogen serves as a reservoir of energy and of glucose. It is an exceedingly small reservoir and when it has been exhausted no drastic clinical change is demonstrable. The author also reviews observations on diabetic rats and on the action of insulin, pointing out that the diabetic animal makes glycogen, but this glycogen is excessively rich in deuterium and probably is made from small fragments. The ability of the diabetic rat to convert glucose directly into glycogen is impaired. Likewise, the rat is almost unable to convert glucose into fatty acid. The administration of insulin favors the utilization of glucose. The phenomena observed in response to lack or excess of insulin have only one step in common, the hexokinase-catalyzed phosphorylation of glucose. The author thinks that the fundamental observation of Price, Cori and Colowick, that hexokinase is subject to inhibition by a material present in the anterior lobe of the pituitary gland and that this inhibition is in turn overcome by insulin, goes a long way to account for many of the metabolic alterations in diabetes and in hyperinsulinism.

Thiamine Potentiated with Neostigmine for Herpes Zoster.—Waldman and Pelner say that most of the action of thiamine can be explained on the basis of its inhibition of cholinesterase, thus liberating more acetylcholine. This is precisely the mechanism of action claimed for neostigmine. As soon as the diagnosis of idiopathic herpes zoster was established, 1 cc. of thiamine chloride (100 mg. per cubic centimeter) and 1 cc. of neostigmine methylsulfate (1:2,000) in the same syringe were given intramuscularly. The dosage was repeated every other day until the severe pain was relieved. The number of injections required to induce relief varied. The age of the patient and the duration of symptoms prior to treatment seem to play a part. The authors used the combined administration of thiamine and neostigmine in 23 cases of idiopathic herpes zoster. The results were sufficiently impressive to warrant further trial of this mode of treatment.

Ohio State Medical Journal, Columbus

43:793-888 (Aug.) 1947

Intravasation of Lipiodol During Uterosalpingography. A. D. Piatt. —p. 821.
Suggested Tuberculosis Control Program for Penal Institutions of Ohio. J. V. Horst and O. A. Beatty.—p. 825.
Rehabilitation of the Disabled. B. A. Treister.—p. 829.
Case of Hydrops Fetalis. L. H. Biskind and Anna M. Young.—p. 832.
Inheritance and Human Cancer. Madge T. Macklin.—p. 836.
Concealed Rupture of Uterus. Mabel E. Gardner.—p. 841.
Cancer of Larynx and Nasal Accessory Sinuses. H. G. Beatty.—p. 843.

43:889-1000 (Sept.) 1947

Newer Concepts of Strabismus. R. S. Rosner.—p. 921.
"Schemm Regime" in Treatment of Extreme Congestive Heart Failure: Case Report. S. Elgart and T. S. Szasz.—p. 926.
*Pseudohypertrophic Muscular Dystrophy in Four Brothers. P. J. Mahar. —p. 929.
Migraine: Treatment with Dihydroergotamine (D.H.E.45). M. D. Friedman and E. J. Wilson.—p. 934.
Necrobiosis Lipoidica with Increased Sugar Tolerance: Case Report. L. Goldman and L. B. Owens.—p. 939.
Carcinoma of the Stomach with Krukenberg Type of Ovarian Metastases: Report of Case. R. C. Costello.—p. 941.
Sodium Pentothal: Precautions and Safeguards Which Should be Observed in Its Use. L. E. Morris.—p. 944.
Religion in Psychologies of Jung and Freud. B. Postle.—p. 947.

Pseudohypertrophic Muscular Dystrophy in Four Brothers.—Mahar reports 4 brothers, 2 of whom were twins and all 4 of whom had pseudohypertrophic muscular dystrophy. The development of one of the twins had been fairly normal up to the age of 7 years, when an illness developed which was diagnosed as poliomyelitis. After that the boy was unable to walk or stand alone. He manifested the typical signs of pseudohypertrophic muscular dystrophy. He was kept under observation. Gelatin was given for two years without apparent benefit. Subsequently the child was placed in a nursing home, and he was first seen by the author two years later, at the age of 14. Crippling was so extensive that sitting propped up in bed was the only change from lying down. The course was downhill with more wasting and progressive loss of strength. Bronchopneumonia developed, and the patient died thirty-six hours after the onset of fever. The history of the twin brother of this patient was similar. He died four months later of a respiratory infection which terminated in bronchopneumonia. The 2 younger brothers of the twins died at the age of 16 and 14, likewise of respiratory infections. In these 2 cases necropsy was done, which corroborated the diagnosis of pseudohypertrophic muscular dystrophy. These brothers had three normal sisters. The disease may appear with no known cases in ancestors, and that was the case in the family under consideration. Some observers have come to the conclusion that pseudohypertrophic muscular dystrophy is transmitted as a sex-linked mendelian recessive trait by normal female carriers to their male offspring.

South Carolina Medical Assn. Journal, Florence

43:227-256 (Aug.) 1947

Abdominal Pain in Children. J. P. Cain Jr.—p. 227.
Development of a Mental Health Program in a State. R. H. Felix. —p. 232.
Ice Pick Through Orbit: Case Report. C. W. Evatt.—p. 236.

43:257-292 (Sept.) 1947

How to Prevent Death from Breast Cancer. E. P. Pendergrass.—p. 257.
Dermatitis Due to Contact with Common Weeds. J. R. Allison and A. M. Rubinowitz.—p. 261.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted. Single case reports and trials of new drugs are usually omitted.

Journal of Endocrinology, London

5:111-184 (July) 1947. **Partial Index**

Failure of Lactogenic Hormone to Maintain Pregnancy Involution of Thymus. C. Grégoire.—p. 115.
Effect of 2 Thiouracil on Histology of Normal Human Thyroid. I. Doniach and E. P. Sharpey-Schafer.—p. 131.
Neurovascular Link Between Neurohypophysis and Adenohypophysis. J. D. Green and G. W. Harris.—p. 136.
Instability of Estrogens in Solution. A. E. Wilder Smith and P. C. Williams.—p. 152.
Relation Between Direct and Indirect Estrogenic Function in a Series of Synthetic Estrogens. G. Brownlee and A. F. Green.—p. 158.
Halogen-Substituted Estrogens Related to Triphenylethylene. C. W. Emmens.—p. 170.

Lancet, London

2:267-302 (Aug. 23) 1947

*Infective Endarteritis of Pulmonary Artery. A. R. Gilchrist and W. Mercer.—p. 267.
Low Back Pain. J. D. Paulett.—p. 272.
Fatal Case of Stevens-Johnson Syndrome. D. F. Johnstone.—p. 276.
Wernicke's Encephalopathy in Surgical Practice: Report of 3 Cases. H. J. Barrie.—p. 278.
Perinephric Abscess Treated with Sulphadiazine and Penicillin. J. Shafar and J. Garber.—p. 279.
Myoma of Small Intestine Causing Intestinal Obstruction. C. C. Cookson.—p. 280.

2:303-340 (Aug. 30) 1947

The Doctor's Mission. J. R. Learmonth.—p. 303.
Practice of Medicine: Two Essays. R. Platt.—p. 305.
Social Medical Teaching. W. M. Arnott, T. McKeown and F. A. R. Stammers.—p. 307.

2:341-376 (Sept. 6) 1947

Coalminers. J. N. Morris.—p. 341.
*Penicillin as Aid in Prostatectomy. J. G. Yates Bell.—p. 347.
Liver and Folic Acid in Treatment of Nutritional Macrocytic Anemia: Comparison of Results. T. A. Kemp.—p. 350.
*Acute Anterior Poliomyelitis Complicating Pregnancy. D. M. W. Maxwell and P. H. Willcox.—p. 353.
Acute Amebiasis Complicating Cholecystectomy: Case Report. K. M. Robertson.—p. 355.

Infective Endarteritis of Pulmonary Artery.—Gilchrist and Mercer say that infective endarteritis of the pulmonary artery is the commonest and most serious complication of persisting patency of the ductus arteriosus. They observed infective endocarditis in 6 of 60 cases of patent ductus arteriosus. Three patients recovered, including 2 treated exclusively by surgical intervention and 1 with penicillin therapy preparatory to ligation. Surgical closure of the ductus is of outstanding importance and takes precedence over chemotherapy. Penicillin, 500,000 units daily for twenty-eight days, may be used in the gravely ill patient who is considered too exhausted for immediate surgical intervention. However, early ligation should be urged because the risks of further pulmonary infarcts are very real in the first few weeks of penicillin therapy. Dissection and ligation are facilitated by the use of cystic duct forceps adapted to this particular purpose. To reduce the tendency to recanalization the ligatures should be applied to the ductus close to its aortic orifice. The development of septicemia due to Streptococcus viridans can be prevented by the routine use of sulfonamide drugs during operations on the mouth and throat. The most effective step in the prevention of infective endarteritis of the pulmonary artery is to keep all children known to harbor a patent ductus under observation until the age of 7 to 10 years, about which time surgical ligation should be performed.

Penicillin in Prostatectomy.—Bell shows that since penicillin has been given as a routine measure before and after operation there has been a reduction in the total mortality from 11.3 to 3.1 per cent in all cases of simple enlargement, and after prostatectomy (removal or resection) from 5 to 2.6 per cent. Before the introduction of penicillin 36.9 per cent of all cases were subject to cystostomy with a case mortality of 15 per cent; since penicillin has been used the proportion has been reduced to 10.9 per cent with no mortality. Penicillin is recommended for any period of indwelling catheterization in prostatic surgery.

Poliomyelitis Complicating Pregnancy.—Maxwell and Willcox describe the case of a woman in whom acute anterior poliomyelitis occurred during the sixth month of pregnancy. The patient was treated conservatively and allowed to proceed to full term; a normal healthy female child weighing 9 pounds 4 ounces (4,082 Gm.) was delivered. No complications occurred, except that there was delay at the pelvic floor and the child was delivered with forceps. Pregnancy and labor had no adverse effect on the gradual progress of the patient toward recovery of power, nor did the disease affect the expulsive power of the uterine muscle. These observations are in accordance with American experience in similar cases. There is no evidence that the fetus can be infected before delivery. The only cases on record in which fetal death took place before delivery have been due to asphyxiation secondary to respiratory paralysis in the mother. There is evidence that the newborn child has antibodies which protect it from infection in the first few weeks of life. However, a few cases of poliomyelitis in the first month are on record. There is no evidence that interference with pregnancy or cesarean section is ever indicated in cases of poliomyelitis in pregnant women, except for circumstances which would equally apply to all pregnant women.

Transactions Royal Soc. Trop. Med. and Hyg., London

40:727-914 (July) 1947. **Partial Index**

Intensive Trypars amide Therapy in Treatment of Trypanosomiasis. A. F. Fowler.—p. 763.
Hyperglycemic Action of Snake Venoms in Relation to Their Toxic and Antigenic Properties. E. Grasset and L. Goldstein.—p. 771.
Primary Splenic Abscess. M. Gelfand.—p. 789.
Malaria in Natives of New Guinea. N. G. Hairston, F. B. Bang and J. Maier.—p. 795.
DDT Spraying Inside Houses as Means of Malaria Control in New Guinea. F. B. Bang, N. G. Hairston, J. Maier and F. H. S. Roberts.—p. 809.
Dengue in Iraq. R. F. Fleming and J. M. French.—p. 851.
Jungle Yellow Fever in Surinam. E. P. Snijders, M. F. Polak and J. Hoekstra.—p. 861.
Studies in Leishmaniasis in Anglo-Egyptian Sudan: IX. Further Observations on the Sandflies (Phlebotomus) of the Sudan. R. Kirk and D. J. Lewis.—p. 869.
*Survival of Transfused Erythrocytes in Sickle Cell Anemia. A. Altmann.—p. 901.
Study of Postmortem Bone Marrow from Cholera Cases. H. N. Chatterjee.—p. 905.

Survival of Transfused Erythrocytes in Sickle Cell Anemia.—Altmann observed a case of sickle cell anemia in which transfusions were required. He decided to follow up the fate of the transfused cells after two transfusions. On both occasions the transfusion was given when the patient had a crisis as evidenced by fever, articular pains, raised icteric index and urobilinuria. The transfusions were well tolerated; no reaction occurred, and the acute symptoms subsided quickly. After the first transfusion, the patient's blood cell count fell to the pretransfusion level within twenty days. Active destruction of blood was taking place during this time and also later, as the icteric index remained raised and urobilin was present in the urine. But this destruction affected only the patient's own cells, the transfused cells disappearing normally at a constant rate of approximately 1 per cent daily. The author concludes that the hemolytic process in sickle cell anemia affects only the patient's own red cells, which are abnormal due to a hereditary factor, while normal red cells remain unaffected.

Tubercle, London

28:153-176 (Aug.) 1947

Tuberculosis Among the Gurkhas: II. Tuberculosis and Gurkha Soldiers. J. Aspin.—p. 153.
Complications of Adhesion Section in Pulmonary Tuberculosis. J. Watt.—p. 158.
Hemothorax Following Section of Pleural Adhesions. W. E. D. Moore and J. Watt.—p. 161.
Case of Fatal Peritoneal Hemorrhage Complicating Artificial Pneumoperitoneum. V. Cornwall and W. H. Patridge.—p. 164.

28:177-198 (Sept.) 1947

Sanatorium and Rehabilitation. L. E. Houghton.—p. 178.
Experiment in Rehabilitation of Tuberculous. D. M. Kissen.—p. 185.
Detection of Mycobacterium Tuberculosis by Means of Fluorescence Microscopy. G. O. A. Briggs and M. H. Jennison.—p. 189.

V 1
1947

Ann. Chirurgiae et Gynaecologiae Fenniae, Helsinki

36:77-172 (No. 2) 1947. **Partial Index**

Treatment of Fractures and Pseudarthrosis with Marrow Nailing. S. Rehnberg.—p. 77.
Subcutaneous Injuries of Intestine, with Special Reference to So-Called Secondary Injuries. E. Tiitinen and J. Anttinen.—p. 96.
*Poliomyelitis in Pregnancy. A. Setälä.—p. 117.
*Rare Ectopic Pregnancy in Left Cornu of Uterus. A. Wist.—p. 129.
Clinical Basal Metabolic Rate and Diagnosis of Thyrotoxicosis. O. Biström.—p. 142.

Poliomyelitis in Pregnancy.—Setälä says that during recent years poliomyelitis has become also in Finland a disease of adults to a greater extent than formerly was the case. Although pregnant women have been found unusually susceptible to poliomyelitis, it seems as if the predisposition might vary in different years. The material reviewed comprises 15 cases of poliomyelitis in pregnancy; in two thirds of these cases the disease was contracted during the latter half of pregnancy. Five cases were fatal; 4 of these were cases in which the disease began during the latter half of the pregnancy. There were no miscarriages. In the patients who survived, poliomyelitis did not influence the course of pregnancy and all patients were delivered of a live child. In some of the cases associated with paresis of the abdominal muscles delivery was difficult. No symptoms of poliomyelitis were observed in the babies.

Ectopic Pregnancy in Left Cornu of Uterus.—Wist reports an ectopic pregnancy that was located in the epithelial passages of the left cornu of the uterus. The ovum had presumably passed to its final site along passages lined with tubal epithelium, opening into the proximal third of the interstitial part of the tube. The author found no description of a similar case in the literature. The ovum perforated the uterine horn at the beginning of the second month. The author supposes that many cases regarded as interstitial have come about in the same way and thus are not interstitial in the proper sense of the word.

Día Médico, Buenos Aires

19:1402-1424 (Aug. 4) 1947. **Partial Index**

Cancer of Lung in Women. A. A. Santas.—p. 1416.

Cancer of the Lung in Women.—Santas reviewed the records of patients with cancer of the lung observed at the Instituto de Clinica Quirurgica of Buenos Aires over a period of thirteen years. He encountered records of 7 women of a total of 350 cases. The author concluded that cancer of the lung is less frequent in women than in men. The low incidence seems to be due to the existence of certain female hormones which make the lung resistant to cancerogenic agents. Adenocarcinoma is the histologic type most frequently found in women. Pulmonary metastases are slightly more frequent than primary pulmonary cancer.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

91:2165-2244 (Aug. 9) 1947. **Partial Index**

Empyemas in Children. J. I. de Bruyne.—p. 2181.
*Alcohol as Antidote in Acute Cocaine Poisoning. A. Höweler.—p. 2188.
Bone Chips for Filling of Residual Cavities After Osteomyelitis. M. de Grood.—p. 2192.

Alcohol as Antidote in Acute Cocaine Poisoning.—Höweler cites several previously reported cases and describes his own experience. One of his cases concerned a girl, aged 18, in whom signs of intoxication became manifest following local anesthesia with cocaine preparatory to adenotony. It is possible that excitement and increased absorption of cocaine as the result of pressure on the adenoids may have been factors in the intoxication. Another case involved a middle-aged woman in whom by error a 10 per cent, instead of a 1 per cent, solution of cocaine was injected under the nasal mucosa, so that the woman received in all about 0.5 Gm. of cocaine. Cardiac weakness is the most serious symptom. After earlier attempts to counteract it with coffee, caffeine or camphor, the author now thinks that alcohol by mouth in the form of wine is the most effective antidote for cocaine poisoning. He warns against the use of sedatives, particularly barbital, to counteract the spasms. The woman who received the excessive dose of cocaine would have died had she not been given alcohol.

Nordisk Medicin, Gothenburg

35:1533-1572 (July 18) 1947. **Partial Index**

*Treatment of Gastric and Duodenal Ulcer. O. Rømcke and K. Nicolaysen.—p. 1533.
Risks in Legally Induced Abortion. Regina Feniger and P. Wetterdal.—p. 1538.

Hospitalstidende

Epidon—New Antiepileptic, Preliminary Report. M. Ellermann.—p. 1541.

Hygiea

1. Nailing of Fractures of Neck of Femur. II. Modified Nailing of Fractures of Neck. A. Ekengren and R. Brandberg.—p. 1547.
Skeletal Changes in Compressed Air Disease. E. Sartor.—p. 1551.

Nordisk Tidskrift

Antistreptolysin in Pediatrics. S. Winblad and Greta Muhl.—p. 1559.
Umbovesical Reflex. S. Axtrup.—p. 1565.
Cases of Brain Tumor in Gothenburg Children's Hospital 1931-1945. B. Nyrin.—p. 1566.
Three Cases of Tumor in Kidney Region in Infants. F. Blomgren.—p. 1570.

Treatment of Gastric and Duodenal Ulcers.—Follow-up of 382 patients with gastric and duodenal ulcers three and eight years after a course of medical treatment at Drammen Hospital according to Rømcke showed that the number of symptom-free patients was reduced in the case of gastric ulcer from 44 per cent after three years to 22 per cent after eight years; in the case of duodenal ulcer, from 34 per cent after three years to 11 per cent after eight years. The standard for determining freedom from symptoms is strict. The prospect for favorable results in medical therapy are twice as good when treatment is started within five years after the onset of symptoms. Operative treatment is advised for patients with ulcers of over five years' duration if they have recurrence after one course of hospital treatment and do not remain symptom free with moderate restriction in diet. This applies especially to patients with duodenal ulcers, pyloric ulcers and small gastric ulcers. With large gastric ulcers the treatment is more expectant but has due regard for the danger of cancer which is present. If because of their occupation the patients, for instance, seamen and lumberjacks, cannot exercise dietary precautions, surgical treatment is advised. Surgical treatment is now advocated for patients who in spite of adequate medical therapy have repeated hemorrhages. Nicolaysen says that from 1933 to 1947 741 cases of duodenal and gastric ulcer were operated on at the hospital, operations for perforating ulcer, bleeding ulcer on vital indication and peptic jejunal ulcers excluded, with 675 resections and 66 gastroenterostomies, the latter mainly in the earlier years. The resection mortality was 3.6 per cent, with 11 of the 24 deaths due to peritonitis; in the first ten years the mortality was 5.4 per cent, in the last three and a half years, 0.74 per cent. During the last three years, two and a half times as many patients were operated on as in the first three years. After gastric resection 80 to 90 per cent of the patients can expect to be well, and in the remaining 10 to 20 per cent the symptoms are as a rule moderate. The reduced operative mortality is ascribed to the routine attention to fluid-electrolyte balance and blood and to the use in recent years in difficult duodenal ulcers of resection for exclusion.

Revista Española de Pediatría, Zaragoza, Spain

3:289-428 (May-June) 1947. **Partial Index**

"R" Extract in Whooping Cough. A. Montero Rodriguez.—p. 379.

"R" Extract in Whooping Cough.—"R" extract is an injectable preparation of gastric mucosa. The author reports good results in 25 infants and young children with whooping cough. The substance is given in daily intramuscular injections in doses of 5 and 10 cc. for the first day for infants and young children, respectively, and 10 cc. on the following days for both infants and children up to complete control of cough, which in this group occurred between the fourth and seventh day. There were no complications but one, namely, a case of bronchopneumonia. The disease was controlled in five days by a combination of "R" extract and sulfathiazole therapy. "R" extract therapy is harmless and reliable.

Book Notices

Occupational Diseases of the Skin. By Louis Schwartz, M.D., Medical Director, United States Public Health Service, Chief Dermatoses Section, Louis Tulipan, M.D. Clinical Professor of Dermatology and Syphilolgy, New York University, College of Medicine, New York City, and Samuel M Peck, B.S., M.D., Dermatologist, Mt. Sinai Hospital, New York City. Second edition. Cloth. Price, $12.50. Pp. 964, with 147 illustrations. Lea & Febiger, South Washington Square, Philadelphia 6. 1947.

Here is a book that can be recommended without qualification. It is decisive and conclusive and it is complete in every respect. Beginning with historical data, it goes on to a consideration of the medicolegal aspects, the compensation provisions in the various states and of course, fundamentals such as incidence, classification, diagnosis, treatment and malingering. Of particular interest are the brief yet thorough descriptions of actual working conditions and technics of the various industries, which aid toward the readier understanding of the pathogenesis of many dermatoses. The book covers a field wider than its title would indicate, for practically the entire field of irritant-caused dermatitis is given consideration. The section devoted to cosmetics considers not alone eruptions occurring in the industry but also those that occur among persons who use the products. The technic of testing new products is described. Eruptions due to shoes and wearing apparel are similarly considered not alone as industrial diseases but as examples of contact dermatoses. The material on explosives, war gases, lachrymators and plastics is up-to-date, and the chapters are arranged for easy reference. Separate chapters are devoted to dermatoses caused by metals, alkalis, acids, coal tars and oils; and by industries, as electroplating, dyeing or glass manufacture.

Altogether this is an excellent book for the dermatologist and industrial physician, although it may offer a little rough going for the general practitioner. He will derive some compensation, however, to note that even the authors have trouble with the old problem of contact eruptions versus ringworm of the palms.

The style, the voluminous material, the full bibliography and index, the well selected illustrations, the complete coverage and the emphasis on preventive treatment all combine to make this an excellent and authoritative source and reference volume.

The Pathology of Traumatic Injury: A General Review. By James V. Wilson, M.D., M.R.C.P., Major R.A.M.C., Pathologist to Harrogate and District General Hospital, Harrogate. Foreword by Philip R. Mitchiner, C.B., C.B.E., M.D., Major-General A.M.S., Surgeon St. Thomas's Hospital. Cloth. Price, $6. Pp. 192, with 61 illustrations. William Wood & Co., Mt. Royal & Guilford Aves., Baltimore 2, 1946.

The study of the pathology of trauma is not new, nor is it a subject which is ever likely to grow old. This work has a decided surgical flavor, but it appeals as well to the pathologist, to those interested in the medical legal field and to the practitioner who is called in accident cases. The book has been written under the stress of war and vividly carries the reader through the author's experiences in the midst of a turmoil such as the world had never seen. This being the case, the author does not need to apologize for the number of references that have been overlooked or neglected. The eleven chapters, clearly written, well coordinated and beautifully illustrated, offer a valuable guide in the prevention and rational treatment of the most important sequels of trauma.

In the chapter on shock due emphasis is given to the work of Blalock, whose classification is followed. The "Application of Pathology to the Treatment of Shock" well outlines difficulties and problems awaiting urgent solution. The various methods of increasing the blood volume and the measures to combat metabolic and other general systemic disturbances are critically reviewed in the light of a broad personal experience.

In the second chapter the pathologic changes occurring in the burned area and the general and systemic effects of burns, including the biochemical changes taking place in the blood plasma, are considered in detail as a guide to the ideal and adequate treatment of burns.

The chapter on crush syndrome and traumatic uremia, although the subject is not new (the Germans had already studied it at the time of World War I), is one of the most interesting and original of the book. It carries the reader through the tragic experiences of the London blitz, of the mining accident in Canada (McClelland) and the similar incident in India (Caplan and Dunkerley); through Wilson's description a serious complication of injury has received an established place in the literature of trauma.

The source of fat embolism, the mode of entry of the fat into circulation, the means by which the body tries to expel the excessive fatty globules in circulation (elimination by the kidneys, removal by the liver cells, absorption by phagocytic endothelial cells, lipase action) are discussed in chapter four, which offers a comprehensive and modern review of the subject.

In the light of present day experience the effects on the organism of the explosive wave incident to detonation of high explosive bombs or shells on land, air or water are analyzed in chapter five, both in their mechanical component and mode of causation.

The last chapter (sixth) of the general part (part 1) is dedicated to the pathology of wounds and wound infections. Since in the opinion of the author proper treatment depends as much on general treatment as on local measures, a thorough discussion is presented of the systemic factors which influence wound healing, including protein requirements, effects of vitamins and hormones, dehydration and electrolytic balance.

The injuries of the chest, blood vessels, abdomen, nervous system and of the bones and joints comprise the last five chapters of the book. Again the author shows the ability to deal with the essentials rather than to give a mass of facts.

Rehabilitation Through Better Nutrition. By Tom D. Spies, M.D. University of Cincinnati Studies in Nutrition at the Hillman Hospital, Birmingham, Alabama. Cloth. Price, $5. Pp. 94, with 50 illustrations. W. B. Saunders Co., W. Washington Square, Philadelphia 5, 1947.

This monograph, by an untiring worker in the field of nutrition, is a statement of the author's views on nutritional deficiences, how they incapacitate and how patients may be rehabilitated. It is based on Dr. Spies's extensive experience in the field of nutrition, with specific reference to the study of nutritional rehabilitation undertaken at the Hillman Hospital in Birmingham, Ala. A large number of patients with nutritive failure were individually treated over a prolonged period.

The author states that he selected only patients who were debilitated by nutrition failure and who could work if their health was restored. He discusses the diagnoses of various vitamin deficiencies, the related anemias, therapeutic principles and results. In conclusion there is a brief recapitulation of his observations. Dr. Spies decries the tendency of many physicians to treat nutritional deficiency as a short term problem in which treatment is stopped after the abeyance of acute symptoms. He points out that the process of nutritional rehabilitation is a long term problem if the patient is to be effectively rehabilitated. This monograph is interestingly written and has a long reference list of the work of Dr. Spies and his associates. It will find a large audience among those actively engaged in practice.

Fire Fighters' Occupational Diseases. By Max H. Skolnick, A. B., M.D., and George J. Richardson. Fabrikoid. Price, $2. Pp. 107. International Association of Fire Fighters, Washington, D. C., 1945.

This volume deals with the occupational diseases of fire fighters and presents a collection of case histories illustrative of occupational factors. The authors take the position that in the past the occupational aspects of certain diseases of fire fighters have not received adequate recognition in many instances and that the sequelae of seemingly minor accidents have not always been accorded merited attention from the occupational point of view. The main purpose of the textbook is to promote a medically sound and thorough system for the recognition of such occupational diseases as a basis for just action in claims for compensation.

The first five chapters are concerned with the most commonly occurring disease, namely, that pertaining to the heart. Coronary thrombosis, valvular disease and chronic myocarditis are discussed and case histories cited. To this reviewer certain statements in this connection appear questionable, such as the

V 1
1947

following: that carbon monoxide poisoning will produce coronary thrombosis and chronic myocarditis.

Three chapters are assigned to the occupational aspects of tuberculosis. It is stressed that the inhalation of irritating toxic gases can activate latent tuberculosis. This is still a controversial problem. Exposure to excessive heat, excessive cold and unfavorable degrees of wetness and humidity is alleged to be an occupational factor in activation of the disease. It is also stated that trauma bears an important relation to the formation of active tuberculosis of the bones, such as that of the spine.

The occupational implications of lobar and bronchial pneumonia affecting firemen are discussed. Comment is also included on the possibility of a causal relationship of injury of the head to the development of dementia precox.

The problem of the development of paresis as a result of head injuries in cases of latent syphilis is explored. A case is presented to illustrate the occupational role that the factor of asphyxia from smoke apparently assumed in the precipitation of an otherwise latent stage of syphilis into the progressive stage of paresis in a fireman.

The book contains an appended list of references, but these are not correlated with the material of the text.

New and Nonofficial Remedies 1947: Containing Descriptions of the Articles Which Stand Accepted by the Council on Pharmacy and Chemistry of the American Medical Association on January 1, 1947. Issued under the Direction and Supervision of the Council on Pharmacy and Chemistry of the American Medical Association. Cloth. Price, $3. Pp. 749. J. B. Lippincott Co., E. Washington Square, Philadelphia 5, 1947.

New and Nonofficial Remedies appears now in a new binding —a light red instead of the familiar dark green. This book, edited and sponsored by the Council on Pharmacy and Chemistry, represents the considered and reconsidered judgments on new drugs of that distinguished body through some forty years of its existence. It is a reliable and authoritative guide to modern rational therapeutics.

The practice which originated some years ago of listing drugs according to therapeutic use as anesthetics, anti-infectives, antispasmodics, cardiovascular agents, choleretics and so forth is continued, as is the custom of heading each classification or subclassification with a compendious but comprehensive and up-to-date discussion. The statements of tests and standards have been put in the back of the book as being of lesser importance to the practicing physician, to whom the book is primarily addressed. There appears to be no very extensive revision of the general articles or chapter head discussions. Several new monographs appear, and others have been revised to reflect current medical opinion. In a new chapter entitled "Unclassified Therapeutic Agents" appear the monographs on gold compounds and iodine compounds for systemic use.

The descriptions of some thirteen newly accepted preparations appear in this volume. This excludes, of course, brands or dosages of already accepted agents. Among those preparations most worthy of mention are the pertussis vaccines and vaccines representing combinations of pertussis with diphtheria and tetanus organisms; the new histamine-antagonizing agent, "benadryl hydrochloride" (diphenhydramine hydrochloride); "furacin" (nitrofurazone), a new topical anti-infective agent; streptomycin; heparin sodium; "parenamine," a new casein hydrolysate; thiouracil, an antithyroid agent; "naphuride sodium" (suramin sodium), a new trypanosomicide, and "tuamine" (racemic 2-aminoheptane), a new vasoconstrictor. One notes the increasing appearance of generic designations in conformance with the revised Council rules on acceptance of products bearing protected or trademarked names.

Fleas of Western North America: Their Relation to the Public Health. By Clarence Andresen Hubbard. Cloth. Price, $6. Pp. 533, with illustrations. Iowa State College Press, Ames, Iowa, 1947.

That part of North America west of the 100th meridian the author calls "a flea collectors' paraside," since two hundred and thirty-six species and subspecies of fleas are found there, while only fifty-five have been encountered in the East. The book is written in a readable manner, beginning with biographies of entomologists who have pioneered in the study of fleas and continuing with chapters on the medical importance of fleas, field and laboratory technics and the anatomy of fleas.

Systematic classification occupies the main portion of the book, with descriptions of each of the fleas, its range, host preference, seasonal distribution, abundance and the area where encountered. A geographic index tabulates, by states, the fleas found both in the West and in the East. A host index describes the animals and birds which harbor western fleas together with their relation to plague, tularemia and murine typhus. At the present time man is troubled by only a few species of fleas, but the author predicts that "as time passes, more and more of our native fleas will be recorded taken off man."

Careers for Nurses. By Dorothy Deming, R.N., Consultant, Public Health Nursing, Merit System Unit, American Public Health Association. Cloth. Price, $3.50. Pp. 358, with 10 illustrations. McGraw-Hill Book Co., Inc., 330 W. 42d St., New York 18; Aldwych House, Aldwych, London, W. C 2, 1947.

The student nurse and the graduate nurse will read this book with interest and profit. The nurse is advised to plan her experience and advanced study early and with care if she wishes to enter a specialized field of nursing. Stressed throughout the book is the importance of general experience under good supervision, to provide the nurse with a sound basis for further training.

Eighteen different patterns of specialized nursing are made to come alive through the on-the-job informal stories of prominent nurses in each field. The opportunities for professional and financial advancement are outlined. An excellent bibliography is provided, together with the names and addresses of the professional associations and agencies best qualified to give the reader further information.

The only weakness in the book is the fact that continuation in general duty or staff positions is not presented in as favorable a light as is the desirability of entering a specialized program in nursing. The blame for this can hardly be put on the author, as the fault is in the system itself. In few institutions or agencies is there presented any advantage—professional or financial—to remaining in the area in which the largest number of expert nurses is needed.

Clinical Pediatrics. By I. Newton Kugelmass, M.D., Ph.D., Sc.D., Attending Pediatrician, Downtown Hospital, Pan-American Clinic, Heckscher Institute, New York. Oxford Medical Outline Series. Second edition. Cloth. Price, $4. Pp. 409. Oxford University Press, 114 Fifth Ave., New York 11; Amen House, Warwick Sq., London, E. C. 4, 1947.

This is the second edition of Clinical Pediatrics of the Oxford Medical Outline series. As the name signifies, it is a skeleton outline of various normal and pathologic conditions. At times the information is so vague and cursory as to make one wonder whether such a book is really necessary or worth while. Perhaps medical students, nurses and very busy practitioners may find it useful. However, books of this outline caliber do not seem to stimulate those that need it, so that they will undertake more thorough reading and study of various subjects. It is very easy reading, and the information made available is quite reliable.

Contribuição ao estudo farmacodinamico da trombeta rôxa (datura fastuosa L.). Por Luiz Gonzaga Porto, assistente da Faculdade de medicina. Tese de concurso á livre docencia da Cadeira de farmacologia da Faculdade de medicina do Recife. Paper. Pp. 71, with 5 illustrations. Imprensa Industrial, 78-82, Rua do Apolo, Recife, 1946.

This is a pamphlet setting forth the pharmacodynamic properties of Trombeta rôxa (Datura fastuosa), with several chapters on its therapeutic properties, chemical composition and the results of experiments in animals and use of the drug as a collyrium in human beings. The plant is used in Brazil as a drug with anesthetic, antineuralgic and sedative effects, and in the treatment of rheumatism, asthma, spasms and convulsions. Leaves and flowers are rich in alkaloids of the belladonna and atropine type and are supposed to possess mydriatic power.

Curare: Its History, Nature, and Clinical Use. By A. R. McIntyre, Ph.D., M.D., Professor of Physiology and Pharmacology, College of Medicine, The University of Nebraska, Lincoln. Cloth. Price, $5. Pp. 240, with 25 illustrations. The University of Chicago Press, 5750 Ellis Ave., Chicago 37, 1947.

The author of this book, who is known for his study of the clinical use of curare, has brought into one volume considerable pharmacologic, chemical and clinical data that will interest those who are curious concerning possible use of curare in medicine.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS. BUT THESE WILL BE OMITTED ON REQUEST.

BARBERING IN A TUBERCULOSIS HOSPITAL

To the Editor:—**What is the best way to sterilize a barber's equipment in a tuberculosis hospital of 1,000 beds? A barber must of necessity travel from ward to ward and carry his equipment with him. Improvements such as complete changes of linen for each patient and abandonment of the old fashioned mug and brush in favor of the lather machine have been made. There remains the problem of sterilizing the razors and the razor strop. It is hardly practical to boil the instruments after each shave. The question has arisen as to whether ultraviolet rays would be of any value in this regard.**

J. D. Murphy, M.D., Oteen, N. C.

ANSWER.—In a large pulmonary tuberculosis hospital where the danger of transfer of infection is a matter of major concern, barber service is a difficult problem. It is important that the barber going from ward to ward should approach each patient with supplies, equipment and hands that are definitely free from contamination. The only sure way of sterilizing equipment is by means of heat. Neither chemical vapors nor ultraviolet rays can be depended on to sterilize instruments. "Cold sterilization" with disinfectant solutions would be costly, possibly irritating to the skin, and unreliable from a bacteriologic point of view.

The following procedure might appear unorthodox and undesirable to the barber, but it would be a practical and safe solution of the problem:

1. Ban the straight razor and razor strop; instead, use several safety razors in rotation. A new blade might well be employed for each patient. The rest of the razor could easily be boiled or autoclaved before it is used again.

2. For soap use lather from a lather machine.

3. Use individual sheet, towels and washcloths for each patient. Paper towels might be employed to advantage here in order to reduce the amount of linen which would need to be sterilized and laundered.

4. Between patients, the barber should wash his hands well with soap and running water and dry them on a paper towel.

CYANIDE POISONING

To the Editor:—**I have a patient who inhaled fumes of a cyanide powder which was being used to kill rats in a grocery store in which he worked. He has had symptoms of gastronephritis, headaches and general weakness in the legs. He is claiming permanent disability. In what manner would cyanide gas poisoning be likely to work when it is inhaled as fumes from a powder? What organs would be most likely affected? How might one determine permanent disability resulting from these fumes? Is there sufficient poison by inhalation of fumes to cause disability over a period of two or three months?**

Jim L. Haddock, M.D., Norman, Okla.

ANSWER.—The form of cyanide powder used for killing rats ordinarily is calcium cyanide. Commonly this is forced down into rat holes and is not sprinkled about. Any sprinkling about a store ordinarily would represent bad practice. Under the action of air and moisture cyanogen is liberated; this gas is highly toxic. Cyanogen is highly irritating to the skin, and in a case not promptly fatal the absence of some degree of skin irritation casts doubt on the likelihood of cyanide poisoning. All cyanides act as internal asphyxiants; that is, they prevent the taking up of oxygen by tissues. There is no chronic form, although such has been described by some authors. However, the acute stage may infrequently be followed by sequelae, but before sequelae of cyanide poisoning may be so diagnosed, three requirements must be met: 1. There must have been exposure to sufficient cyanide material to bring about an acute episode. 2. An acute episode must have taken place and must have led to some or all of the outstanding features of cyanide poisoning. 3. The acute episode must have been severe rather than trivial.

The symptoms of acute poisoning are now indicated. When the intake is gross, death occurs so promptly that no symptoms may appear to arise, certainly no subjective symptoms. When the intake is smaller, even though a fatal outcome is not anticipated, the first manifestation (contrary to most textbooks) is instantaneous collapse, which may or may not be preceded by some alarmed outcry. A second common and seldom described feature is numbness of one or more extremities. The textbook type of symptoms include smarting of mucous membranes and eyes, headache, vertigo, vomiting, nausea, rapid heartbeat and excessive breathing for a short period followed by shallow breathing, trembling, muscle cramps, convulsions followed in severe cases by unconsciousness. The objective symptoms during this period, which may be represented by hours rather than seconds, are reddened surface parts, particularly veins; high blood pressure; sugar in the urine and possibly albuminuria and, if the condition is prolonged, polycythemia. The sequelae from acute poisoning are usually associated with the following: headache, vertigo, malaise, lassitude, weakness, unsteadiness of gait, hampered jaw movement, sustained nausea and vomiting, loss of appetite, disorders of gastric and intestinal function, albuminuria, depressed tendon reflexes, irritation of the respiratory tract, diminution in skin sensitivity and, rarely, polycythemia. In the instance of the query the diagnosis largely rests on the occurrence of any acute cyanide poisoning. Should this have occurred the disturbances mentioned may exist as sequelae. In any event permanent disability may be doubted.

PROTECTIVE CREAMS AGAINST CUTTING OILS

To the Editor:—**Can you advise me as to an oil resisting cream that could be used against "cutting oil" used in the operation of a turret lathe machine. The oil is used to spray the machine in order to reduce the metal filings.**

Albert I. Clark, M.D., Shreveport, La.

ANSWER.—Oil resistant protective creams contain oil insoluble ingredients. They can consist of (1) a simple vanishing cream or of (2) solution of a water soluble gum. Examples of such oil repellent creams are West Protective Cream No. 22, Ply No. 1 and West Protective Cream No. 33. For other examples see Schwartz, Louis: Protective Ointments and Industrial Cleansers, *M. Clin. North America*, July 1942, p. 1195, and Schwartz, Louis; Mason, Howard S., and Albritton, H. R.: A Method for the Evaluation of Protective Ointments, *Occupational Medicine* **1**:376 (April) 1946.

EXPOSURE TO TNT

To the Editor:—**The literature on the management of workers exposed to TNT advises that a 5 to 10 per cent solution of sodium sulfite be used before the soap and water cleansing. I have not been able to find any mention of the rationale for the use of sodium sulfite. Is its action that of a cleansing agent or is it that of a color indicator? If sodium sulfite is of value would you please tell how it should be used?**

B. R. Sears, Captain M. C., Pueblo, Colo.

ANSWER.—W. D. Norwood (*Indust. Med.* **12**:206 [April] 1943) devised a liquid soap to which he added 5 to 10 per cent of potassium sulfite and 5 to 15 per cent of a wetting agent for use as an indicator soap by workers handling TNT and tetryl. The potassium sulfite helps to dissolve TNT and tetryl from the skin and thus aids in its removal. It also develops an orange color as long as any traces of TNT and tetryl remain on the skin. It is therefore an indicator as well as a cleanser, the presence of the color indicating that further cleansing is necessary until the color no longer shows. Sodium sulfite is not as good in liquid soap for this purpose as is potassium sulfite, because it separates on standing. Sodium sulfite solution can be used before soap and water. It will help to dissolve and remove the TNT or tetryl from the skin and give a color indication as long as any traces of the explosive remain on the skin.

SILICOSIS

To the Editor:—**1. What is the treatment of silicosis of the lungs? 2. Are there any good treatments for the chronic catarrh (nontuberculous) accompanying this disease? 3. Is the use of calcium gluconate intravenously of any danger or is there a possibility of reaction with the silicate deposits in the lungs?**

C. Braendli-Wyss, M.D., Burgdorf, Switzerland.

ANSWER.—1. The only really satisfactory treatment of silicosis is its prevention. However, inhalation of aluminum dust is being used for treatment in some areas but without uniform success. Unbiased workers in this field believe that its usefulness is limited to moderately advanced cases which are progressing in spite of all efforts to control the dust hazard and to cases which are not tuberculous. Tuberculosis associated with silicosis seldom improves under any form of treatment. Other complications such as emphysema, spontaneous pneumothorax and right heart failure can be given some benefit by the use of the accepted supportive measures for these conditions.

2. By chronic catarrh the questioner most likely means chronic sinusitis, nasopharyngitis and possibly also bronchitis, which are not commonly associated with silicosis in this country. The treatment of these conditions is notoriously unsatisfactory whether or not accompanied with silicosis.

3. Calcium gluconate intravenously would not be harmful as far as the silicosis is concerned, but it is difficult to understand what therapeutic value it would have. It might be interesting to know just what the questioner had in mind in suggesting this treatment.

VOLKMANN'S ISCHEMIC CONTRACTURE

***To the Editor:*—Please present a brief discussion of the management of Volkmann's ischemic flexion contracture in a child of 6. A simple fracture of the radius and ulna occurred at the junction of the middle and distal thirds. This was placed in a plaster cast, which was removed on the third day because of severe pain. The arm was swollen and the fingers were cold. A bivalve cast was applied, and the edema subsided. After four weeks a light removable cast was applied and passive massage begun. Soon after that the flexion contracture became progressively worse and has not been improved by classic methods of treatment as outlined in numerous textbooks.**

M.D., California.

ANSWER.—Volkmann's ischemic contractures can best be treated if it is early recognized that an abnormal amount of pain and swelling in the extremity is present following some trauma. The fracture or injury should be completely disregarded and all constricting casing removed. If there is sufficient tension in the cubital fossa, multiple incisions should be made down to the great vessels to relieve the pressure. Antispasmodic drugs and possibly stellate ganglion injections are indicated early. Once ischemia and fibrosis of the muscles begin, treatment consists only of physical therapy to increase circulation and stretching to prevent and correct contractures.

Later surgical treatment may be of some help; it consists in stretching splints, tendon lengthening, capsulotomy and fasciotomy to relieve the contractures. The results are frequently discouraging, since nothing can restore the fibrotic muscles. Occasionally, tendon transplantation will help.

LUMINOUS CLOCKS NOT HARMFUL

***To the Editor:*—Can the luminous dial of an alarm clock 6 inches in diameter be a source of chronic radium poisoning in an adult or newborn baby sitting or lying close by the clock for many hours a day?**

Bianca Sender, M.D., New York.

ANSWER.—No prospect of real damage exists from a single ordinary dial. Commonly these luminous dials represent divers sulfides activated by traces of radioactive substances. The energy output is low. The dial cover, glass or plastic, together with the distance of at least a foot or two further promotes safety. In the early days of the war, when aircraft instrument panels became highly complex with luminous dials, this multiplicity introduced a threat to pilots and led to autoluminosity for only the key instruments, the less important ones being made luminous by adjacent ultraviolet lamps. In plants manufacturing luminous dials, in store rooms for the finished product significant radioactivity may be detected, but in households or about the person, a single or a few luminous dials need occasion no alarm.

COPPER COOKING VESSELS

***To the Editor:*—I should like to know the dangers involved in the use of copper and copper lined vessels for cooking and as containers for milk and water.**

D. M. Benford, Lieutenant, M. C., Buffalo.

ANSWER.—On a practical basis, both in industry and in connection with foods and drink, copper provides no major problem under ordinary circumstances. Chiefly this is due to the fact that copper is absorbed from the alimentary tract with difficulty, its chief action being local and associated with frequent emesis and occasional diarrhea. A fair percentage of plumbing represents copper pipes. Thousands of hotels and restaurants make use of copper vessels for cooking in which the customary tin lining has worn away. Copper salts extensively are employed to furnish a bright green color to vegetables such as peas and beans. Time honored is the use of copper vessels in households for the canning of fruit and vegetables. Out of none of these common usages has experience indicated significant damage from copper. In therapeutics, apart from the use of copper as an emetic, such doses as 30 mg. of copper sulfate several times daily in times past widely have been employed without established damage. Despite the foregoing, it is impossible not to accord to copper a minor role of disturbance. Many of the best hotels and restaurants either have shifted to large cooking units of stainless steel or carefully procure retinning at the first signs of copper exposure. In the manufacture of carbonated beverages, continued effort is exercised to avoid a significant copper content in beverages, since this industry commonly deals with fruit acids such as citric along with carbonic acid. Immediate vomiting after drinking "pop" is a fairly common experience. Some persons promptly vomit after the ingestion of some shellfish apart from an allergic state, and apparently some such emesis is due to an unusual copper content. Milk long in contact with copper seems to lead to the formation of copper lactate or possibly butyrate and on occasion may present a greenish tinge. Instead of this being regarded as detrimental, it may represent a slight advantage, since such milk may not "turn" as readily as otherwise. However, this statement implies no high bactericidal value for copper salts. A daily intake of 4 to 5 mg. of copper probably represents the upper limit, although up to 20 mg. has been widely condoned. In water supplies a maximum limit of 2 mg. of copper per liter is well recognized, although various waterworks authorities specify a much lower maximum. The lethal dose of copper in the form of its common salts is somewhere near 10 Gm., although 1.25 Gm. of copper acetate is known to have killed a child. All considered, copper salts may be relegated to a low position as a major poison, but minor disturbances such as vomiting, nausea and diarrhea without lasting results are probably widespread. These occurrences represent one of the common real causes of so-called food poisoning.

THE TOXICITY OF KEROSENE

***To the Editor:*—Is there information to prove or disprove the possibility that kerosene by inhalation alone (not ingestion) could cause irritation of the respiratory system or pulmonary edema, or that it could be a predisposing cause of pneumonia?**

M.D., New York.

ANSWER.—The toxicity of kerosene is to be appraised along with the similar hydrocarbons—naphtha, gasoline, and benzine (not benzene). Any differences in practical exposure to these substances largely depend on the difference in boiling point, kerosene thereby obviously being less volatile than benzine. Foremostly, the action of these hydrocarbons after inhalation is not on the respiratory tract but instead on the central nervous system. In general the action resembles that of ethyl alcohol. "Naphtha jags" frequently arise among those well exposed. While "naphtha jags" represent the acute state of intoxication from these hydrocarbons, it is probable, but not well proved, that severe chronic conditions may arise after prolonged exposure, but still centering about the central nervous system. Notwithstanding, these substances may exert some irritant action on the respiratory tract. Lehmann and Flury's "Toxicology and Hygiene of Industrial Solvents" (Williams & Wilkins Company, 1943) contains a lengthy appraisal of this problem and at one point makes use of the following language: "The irritating effect caused by inhalation and exhalation of benzine also leaves its mark on the lungs. With Jaffe we can distinguish two forms of lung changes: severe and extended tissue hemorrhages with inflammatory reactions as a result of benzine poisonings which run their course very quickly, and extended inflammatory-necrotic processes as a result of poisonings which take longer to run their course." Thus it becomes within the realm of possibility to recognize that pneumonia on rare occasion might be associated with the irritant action of kerosene. The degree of probability is low. In addition to the book previously mentioned, that of Browning, entitled "Toxicity of Industrial Organic Solvents" (His Majesty's Stationery Office, 1937) contains an extended review. See also an article by M. Schmidtmann (*Klin. Wchnschr.* **9**:2106, 1930) in which it is reported that in animals, long exposure to benzine results in chronic bronchitis and atelectatic pneumonia.

"HEX"

***To the Editor:*—I recently saw a patient in whom there developed a hematuria after prolonged exposure to a liquid called "hex," which he uses in his dry-cleaning business. The label on the bottle states that it contains lithium fluosilicate. Please inform me as to the toxic effects of prolonged exposure to this substance?**

M.D., Connecticut.

ANSWER.—To determine the toxicity of the dry cleaning compound "Hex," its complete composition should be known. Detailed knowledge of its composition is not known.

Lithium fluosilicate, one of the constituents of "hex" is a nonvolatile, water soluble, neutral salt and is probably used as a

moth-proofing agent. It is a toxic fluoride compound, exhibiting toxic effects similar to those of sodium fluoride.

Prolonged exposure to a compound containing appreciable amounts of lithium fluosilicate can result in gastrointestinal and neurologic reactions, anemia, albuminuria, mild degrees of renal damage and respiratory ailments; it may also affect the eyes, liver and spleen. However, the outstanding characteristic of chronic fluoride intoxication is the appearance of osteosclerosis or fluorosis.

Fluoride absorption is dependent on the aqueous solubility of the salt (lithium fluosilicate is extremely soluble). Within limits, urinary fluoride may be used as a measure of fluoride storage. According to Dr. E. J. Largent, samples of urine containing 5 to 10 mg. of fluorine per liter indicate that fluorine is being retained in the bones.

TOBACCO AMBLYOPIA

To the Editor:—Will you kindly answer the following questions, giving references: 1. Is tobacco amblyopia still considered a clinical entity? Please describe symptomatology and prognosis. 2. Has experience in the recent war disclosed incompatibility of smoking with accuracy involving bombing efficiency in air fighting? 3. Is reaction time affected in immoderation in smoking, night blindness? 4. How is nicotinic acid made, from yeast, tobacco or synthetically?

M.D., Arizona.

ANSWER.—1. Tobacco amblyopia is still reported as a clinical entity. It is characterized by a gradual, or occasionally sudden, loss of visual acuity, particularly in the central field of vision, most particularly for colored objects, usually bilateral. It may progress to the point of total blindness but usually improves as soon as the tobacco is stopped. If smoking can be reduced or discontinued, the prognosis is very good, but recurrences may be noted when tobacco is used again or in larger amounts (Carroll, F. D.: Analysis of 55 Cases of Tobacco-Alcohol Amblyopia, *Arch. Ophth.* **14**:421 [Sept.] 1935. Herrell, W. E., and Cusick, P. L.: Vascular and Retinal Abnormalities Following Inhalation of Tobacco Smoke, *Proc. Staff Meet., Mayo Clin.* **13**:273 [May 4] 1938. Bogen, Emil, in appendix 11 of Fisher, Irving, and Emerson, Haven: How to Live, ed. 20, New York and London, Funk & Wagnalls Company, 1938).

2. Although tobacco smoking may lower the Schneider index rating and hence the effective ceiling, it was not generally felt that this effect was sufficient to contraindicate the use of tobacco in our air forces.

3. There is no evidence that reaction time is affected by immoderation in smoking. Night blindness also has not been shown to be directly affected by immoderate smoking.

4. Nicotinic acid may be obtained by extraction from yeast or other natural sources, or manufactured by oxidation of nicotine obtained from tobacco, or by the oxidation of quinoline synthetically.

BALDNESS

To the Editor:—Is there any reason found as to why baldness is usually associated with men?

L. Edward Giovine, M.D., Woodside, N. Y.

ANSWER.—Baldness in the male has been attributed to multiple factors, varying from tight fitting hats and frequent washing of the hair to seborrhea, or endocrine disturbances of the pituitary body or testicle, or deficiency of estrogens and multiple combinations of the foregoing. J. B. Hamilton, in research on eunuchs and eunochoid persons (*Am. J. Anat.* **71**:451 [Nov.] 1942) showed that there is a definite relationship between the testes and baldness. Herbert Rattner, in a paper on ordinary baldness (*Arch. Dermat. & Syph.* **44**:201 [Aug.] 1941), agreed with Danforth that evidence of an endocrine influence on the hair, although such evidence is abundant, may be difficult to interpret, and that before endocrine therapy is advised for simple baldness other adequate evidence of endocrine dysfunction should be present. Extensive references were given by Rattner to various theories as to why baldness occurs in men. More recent references are to be found in the book by Savill on the Hair and Scalp (ed. 3, Baltimore, Williams & Wilkins Company, 1945). E. A. Cockayne (Inherited Abnormalities of the Skin and Its Appendages, London, Oxford University Press, 1933) referred to the older concept that premature baldness is inherited as a sex linked recessive character or by a gene in the Y chromosome, but he cautioned against full acceptance of this view. Rattner in his paper concluded that "the man who would avoid baldness had better use greater care in the choice of his ancestors."

"CELLOSOLVE"

To the Editor:—Your comments on "cellosolve acetate" in Queries and Minor Notes July 19, page 1057, are indicative of an existing, frequently unfulfilled need by industrial physicians for reliable information on the toxicity and potential hazards of chemicals which they encounter in their practice. The solvent in question is one of a large number of synthetic organic chemicals, the toxicity of which has been studied by animal experimentation by the Multiple Fellowship on Chemical Hygiene during the past ten years. This experimental work has been conducted not alone from a purely pharmacological point of view but also in relation to conditions that would approximate actual exposures in industrial plants. Since, aside from the single-dose toxicity observations (Smyth, H. F., Jr.; Seaton, J., and Fischer, L.: *J. Indust. Hyg. & Toxicol.* **23**:259 [June] 1941), the only other experimental data in the American literature specifically on this material are those of von Oettingen and Jirouch (*J. Pharmacol. & Exper. Therap.* **42**:355 [Aug.] 1931), I take this opportunity of amplifying and extending the knowledge on this subject.

Single Doses.—The oral administration of "cellosolve" acetate (ethylene glycol monoethyl ether monoacetate) to male rats, rabbits and guinea pigs resulted in LD_{50} values of 5.10, 1.95 and 1.91 Gm. per kilogram of body weight, respectively, calculated by the method of probits described by Bliss (*Ann. Applied Biol.* **22**:134, 1935; *Quart. J. Pharm. & Pharmacol.* **11**:192, 1938). All mortalities occurring within fourteen days following the dose are considered, this period being the standard observation time for single dose work in this laboratory. Application of the undiluted compound to the clipped skin of a guinea pig for four days by means of a covered cotton poultice gave an LD_{50} of 18.8 Gm. per kilogram. The LD_{50} by skin penetration for male albino rabbits is 10.3 Gm. per kilogram when the material is applied undiluted under a "vinylite" dam for twenty-four hours.

Single Exposures.—Two groups of 6 male albino rats each tolerated a single exposure of four hours' duration to 1,500 parts per million (air saturated at room temperature), but 2 of 6, or 33 per cent, died after eight hours of a similar exposure. Groups of 6 rats were exposed to a mist produced by bubbling 2.5 liters of air per minute through 50 cc. of the compound heated close to its boiling point (153 C.) by immersion in a bath at 170 C., with the air stream cooled immediately before entry into the exposure chamber. The first death occurred in three and one-half hours, and all succumbed in four hours. A two hour exposure killed 3 of 6 rats, with deaths delayed. Mist exposure combines the effects of skin absorption as well as vapor inhalation, since the animals are wetted by condensed material.

Three adult male dogs were exposed to 600 parts per million of the vapor of "cellosolve" acetate for seven hours daily, five days per week, to a total of one hundred and twenty exposures. There were no observable deleterious effects on weight gain or appetite. Complete blood counts made preliminary to the start of the exposures and at monthly intervals thereafter were normal. Differential and reticulocyte counts made weekly showed no significant deviation from those of the 3 dogs in the control group. Periodic sulfobromophthalein excretion tests and serum phosphatase determinations gave no indication of functional impairment of the liver, and blood urea nitrogen determinations and urinalyses revealed no abnormality of renal function. There was no gross or microscopic damage detectable in sections of liver, kidney, adrenal, thyroid, bladder, heart, intestine, lung, pancreas, spleen or testis of these dogs.

Methemoglobin Formation.—This point is of particular interest to us, since your reference to the work of von Oettingen and Jirouch in this connection would lead the casual reader to classify "cellosolve acetate" with the aromatic amines as regards this hazard. Actually, the method employed by those authors to demonstrate the formation of methemoglobin in vitro has little bearing on the practical use of this ester as a solvent. In my experience, no methemoglobin was demonstrable in the blood of rats thirty minutes after the termination of a four hour exposure to 1,500 parts per million of the vapor, as has been previously stated. The method of Evelyn and Malloy (*J. Biol. Chem.* **126**:655, 1938) was used. Moreover, 2 adult male dogs were given 1 Gm. per kilogram of body weight of the compound as a 50 per cent dispersion in water by stomach tube. Two hours later samples of blood were analyzed for methemoglobin with negative results. One animal had vomited a portion of the dose in this interval, but the other retained it in its entirety. The following day these same dogs were exposed to 1,000 parts per million of the vapor for four hours. One-half hour after termination of the exposure methemoglobin determinations were made, with the results again negative. The dog that had vomited a portion of the oral dose withstood the vapor exposure without untoward symptoms. The second animal, which had retained the oral dose, was in a debilitated condition. The corneas of his eyes were severely burned by the vapor, and on the following day lassitude, anorexia, nasal discharge and bloody diarrhea were noted. This dog was prostrate until killed five days after the oral dose. Sulfobromophthalein retention on the fifth day was 40 per cent in fifteen minutes and 33 per cent in forty-five minutes following the injection, indicating hepatic injury.

Comment.—Despite the dubious wisdom of comparing quantitative pharmacologic data, I feel justified in noting that these animal results indicate a similar degree of toxicity of like concentrations of "cellosolve acetate," methyl ethyl ketone, propylene dichloride or tetrachloroethylene (perchloroethylene). However, at room temperature "cellosolve acetate" has a vapor pressure one thirty second that of methyl ethyl ketone, one sixteenth that of propylene dichloride or one sixth that of perchloroethylene. At 60 C. the ratios are not widely different. Accordingly, when used in a particular process the probability of attaining equal vapor concentrations in the air is less for the ester than for the other three solvents in the ratios already given; hence, the hazard of use may also be said to be this much less.

Charles P. Carpenter, Ph.D.,
Mellon Institute of Industrial Research,
Pittsburgh 13.

V 1
194